

Harmonic Innovations of Stravinsky and
other Twentieth Century Composers

by

Dorothy Louise Kimball

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Thesis

HARMONIC INNOVATIONS OF STRAVINSKY AND OTHER TWENTIETH
CENTURY COMPOSERS

by

Dorothy Louise Kimball

(B. Music, Boston University, 1941)

submitted in partial fulfilment of the

requirements for the degree of

Master of Arts

1943

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INTRODUCTION

Since the beginning of the twentieth century there have been several tendencies, or styles, in music. At first, the new use of unusual harmonies, progressions and color was termed Impressionism. The important element here was the communication of feeling, as an "outburst of the soul."

Later the composers turned to a style in which the aim was to have no key center, or tonal center. They called this Atonality. Very few composers truly achieved this goal - rather most of them succeeded in writing music which should be called instead Polytonal, for it contained for the most part combinations of two or more different tonalities, rather than an absolute lack of any tonal center.

In later years the tendency has been to write more in the style of the pre-Beethoven composers - a **revival** of the pure, transparent forms from the classicists. This is simple and well-balanced music, but without any romantic feeling, and has been termed Neo-Classicism.

Throughout these periods there have been various harmonic devices used by the composers to attain their various goals. It is the aim of this thesis to illustrate the devices which have been used by certain composers.

One of the most important composers to be discussed here is Stravinsky, in whose later works the Neo-Classical element first began to appear, a movement which tried to do away with the expression of strong emotions in music, and to remove literary associations from instrumental works, as

well as to place less emphasis on emotional harmony, and more on strong rhythms, with an orchestration in which the instruments would stand out in their own tone colors, rather than effecting a blending. In the later works, the use of small combinations of instruments brings out these "colors" and characteristics of the instruments more clearly.

In all the tendencies of twentieth century music, there may be found a parallel movement, as has always been the case, in the other arts, poetry and painting.

Of the other composers to be taken up here, just a word about each follows.

In the works of Prokofieff are found classical sympathies and taste. The idiom is one of a hard and dry character, the themes are clearly defined, and the forms are angular and symmetrical, while there is much use of continuous rhythmic motion.

The aims of Scriabine were never fulfilled in his compositions. In Prometheus, which he considered to be a study toward his life masterpiece, he tried to combine the sense of hearing with the sense of sight, writing one line of score for a "color organ", with a certain color for each note. He had intended to carry this idea still to greater extremes and add the sense of smell, but died before progressing very far with his work in this field. Scriabine's use of his "Mystic Chord" will be discussed in detail later.

The works of Schönberg can be simply and briefly outlined as

well as to place less emphasis on technical details, and more on the general principles, with an emphasis on the latter. The results would be to give the student a better understanding of the principles of the subject, and to make the study of the technical details more easily.

In all the branches of the subject, the same principles are found, and the same methods are used. The only difference is in the details, which are more or less complicated.

It is the object of this book to give a clear and concise statement of the principles of the subject, and to show how they are applied in the various branches of the subject.

In the study of the subject, it is necessary to have a clear understanding of the principles, and to be able to apply them in the various branches of the subject. The object of this book is to give a clear and concise statement of the principles, and to show how they are applied in the various branches of the subject.

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follows: the early works, in which there was a Romanticism resembling Wagner and Richard Strauss; the period from approximately 1906-1920, when he was working in a new idiom, using many chords built in fourths, to be discussed in a later chapter; then the entirely contrapuntal atonal style, which has developed in the latest works into the technique of the use of the twelve-tone system, also to be taken up later.

The last composer to be dealt with here is Hindemith, whose works are essentially different from those of the other composers discussed. Hindemith's style is an intellectual, scholarly system, which contains no real atonality, but rather a working out of an intricate linear counterpoint. It is dissonant, but has tonality, and is carefully worked out, and is explained by the composer in his book, The Craft of Musical Composition, which will be quoted later on.

As would be expected, all the works of the composers do not conform exactly to these general statements, but for the most part these are the idioms in which they write. The aim of this paper shall be to illustrate the ways in which these composers make use of the devices to be taken up in attaining their individual styles.

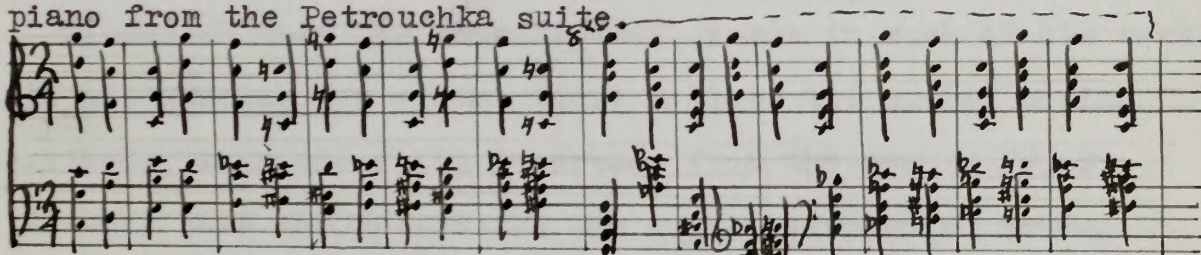
PARALLEL MOTION

Moving chord blocks

The practice of writing music consisting of series of moving chord blocks is usually connected with the Impressionistic school. With Debussy came the custom of writing any number of chords in succession, of absolutely or of nearly equal structure, forgetting the hitherto normal or accepted resolutions or progressions. This was merely a matter of handling the old harmonic material by a new method, rather than an entirely revolutionary type of music.

When the chord blocks are of equal construction, there results either a constant shifting of tonal center or else a seeming absence of key, due to the nature of the particular chord. On the other hand, the chords are oftentimes altered to conform to the scale tones of the key. In that case, there is no doubt as to tonality, and the device is perhaps not quite as effective as a feature of Impressionism.

Stravinsky uses at times long passages of moving chord blocks, of equal structure, as is illustrated here in a section from Trois Mouvements de Petrouchka, excerpts for piano from the Petrouchka suite.



Another example of moving blocks by the same composer is found in his Jeu de Cartes, which, it is said,*"deals choreographically and, so the composer claims, musically with a game of poker and is furnished with a score of great com-

* Grove's Dictionary (Supplementary Volume)

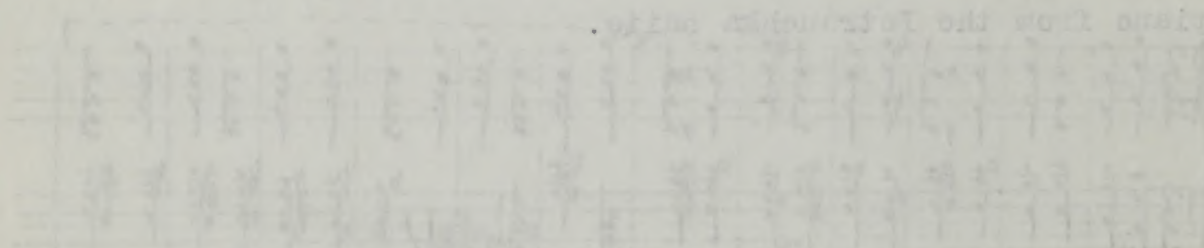
THEORY OF THE CHORD

THEORY OF THE CHORD

The practice of writing a chord consisting of notes of one-
 ing chord block is usually connected with the progression-
 lasted school. With January came the theory of writing any
 number of chords in succession, of ascending or of descending
 equal structure, forgetting the highest notes or neglected
 remissions or progressions. This was merely a matter of
 handling, the old harmonic material by a new method, rather
 than an entirely revolutionary type of music.

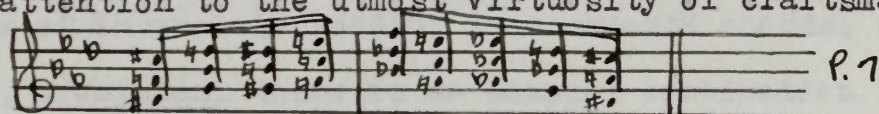
When the chord block was of equal construction, there
 results either a constant shifting of tonal center or else
 a seeming absence of key, due to the nature of the particular
 chords. On the other hand, the chords are often written
 to conform to the scale tones of the key. In that case, there
 is no doubt as to tonality, and the device is perhaps not
 quite as effective as a system of improvisation.

Extensively used at times long passages of moving chord
 blocks, of equal structure, as is illustrated here in a
 section from *Three Movements for Trombone*, excerpts for

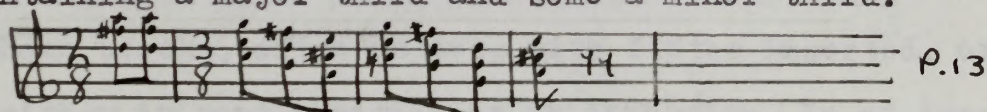


Another example of moving blocks by the same composer is
 found in his *Two for Trombone*, which, it is said, "drama-
 tically and, in the composer's words, seriously with
 a form of power and is furnished with a series of great con-
 siderable blocks (supplementary volume).

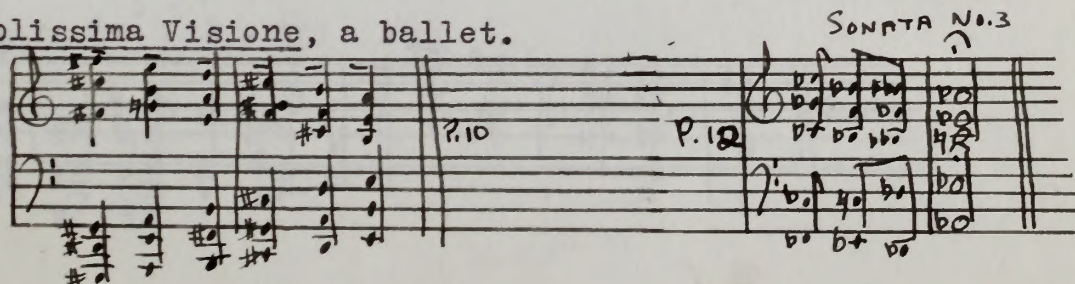
plexity of texture but extraordinary lucidity of sound, written in a manner that converts a medley of allusions to all sorts of light music (Rossini, Delibes, Johann Strauss, jazz, etc.) into a kind of style of its own which shows a keenly intelligent artist still at work upon an unceasing quest after new ways and means of expression and an ever-vigilant attention to the utmost virtuosity of craftsmanship."



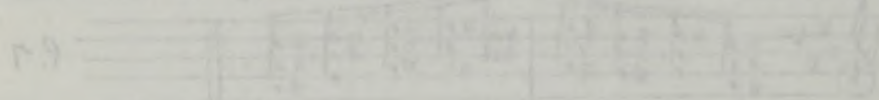
A similar example of chords is found in Les Noces, a secular ballet-oratorio, which began as an experimentation in timbre and rhythm and ended far more formidably. It is like a tribal chant, with insistent, repetitious rhythms. With this work, Stravinsky's "interest in the nerve-twisting possibilities of rhythmic pulse culminated." This was in 1923. In this example all the chords are not equal in structure, some containing a major third and some a minor third.



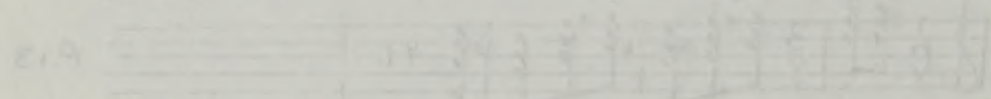
Hindemith uses the same type of chords in much of his work. In his Sonatas for organ, there follows the use of moving octaves, with the fifth inserted, from the Sonata No. 3. In this case the structures are equal, each voice moving down by half-step. Similar octaves with fifths are found in the Noblissima Visione, a ballet.



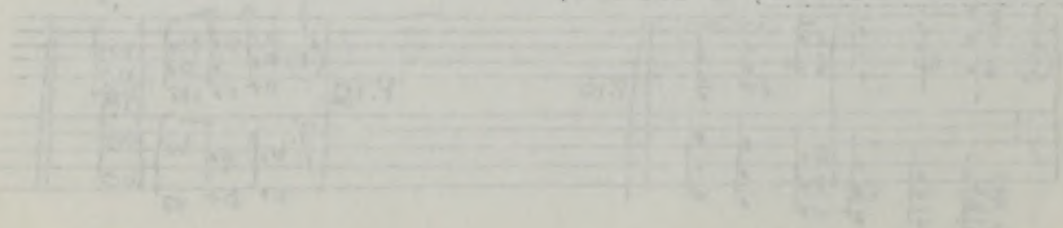
plenty of examples of this extraordinary facility of mind, written in a manner that converts a melody of intervals to all sorts of rhythmic values (beats, halves, whole notes, etc.) into a kind of style of its own which gives a keenly intelligent artist still to work upon an unending quest after new ways and means of expression and an ever-vigilant attention to the utmost variety of orchestration."



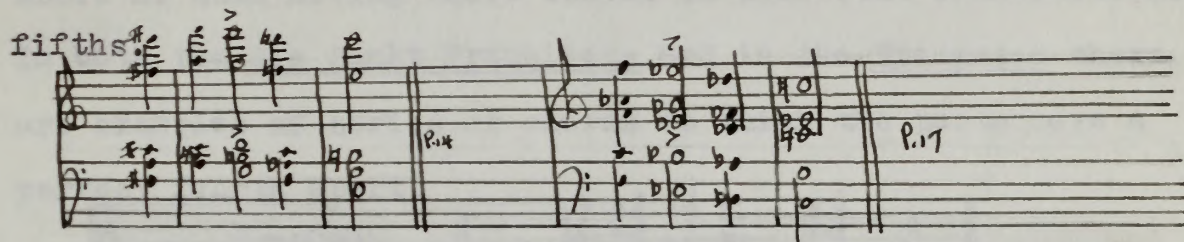
A similar example of chords is found in the *Concerto*, a so-called ballad-concerto, which began as an experiment in chords and rhythm and ended far more forcibly. It is like a tribal chant, with insistent, repetitive rhythm. With this work, Stravinsky's "interest in the new-chord" possibilities of rhythmic pulse diminished." This was in 1923. In this example all the chords are not equal in duration, some containing a major third and some a minor third.



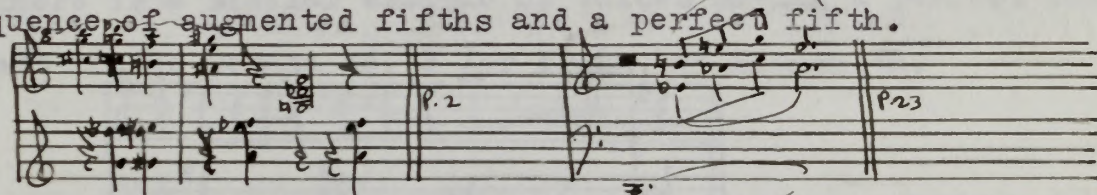
Stravinsky used the same type of chords in much of his work. In his *Concerto for Piano*, there follows the use of moving octaves, with the fifth inverted, from the *Concerto No. 2*. In this case the octaves are equal, each voice moving down by half-step. Similar octaves with fifths are found in the *Violin Concerto*, a ballad.



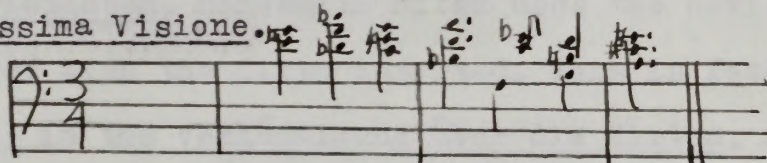
Also in the Noblissima Visione are found instances of moving minor triads and of moving octaves, combined with thirds and fifths.



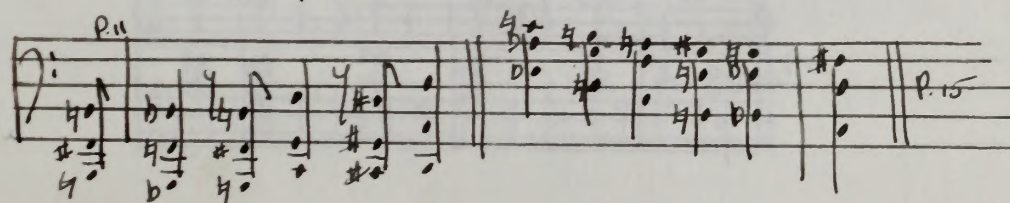
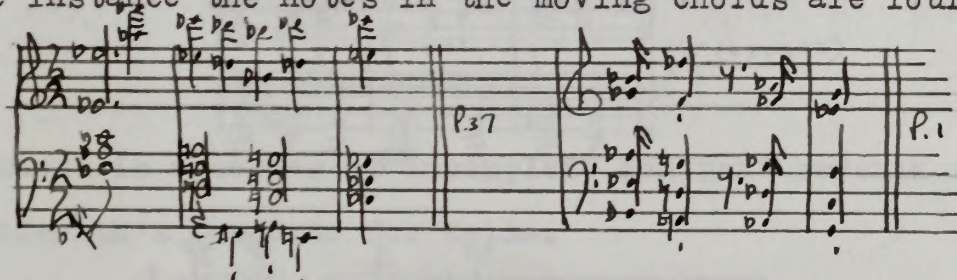
In one of Hindemith's Lieder, Die trunkene Tänzerin, there is a series of incomplete leading tone seventh chords, and in another, Trompeten, there is an unusual combination in sequence of augmented fifths and a perfect fifth.



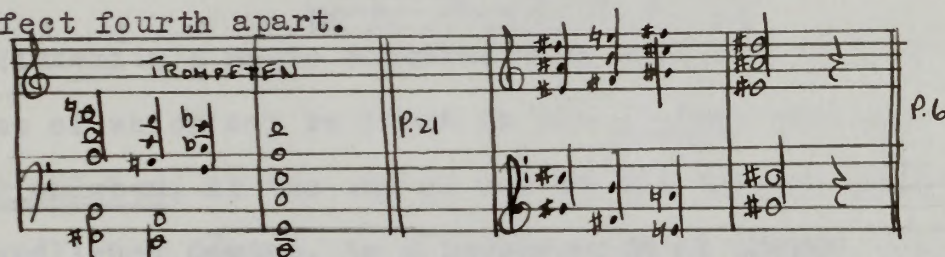
There is another instance of moving triads, this time major, in the Noblissima Visione.



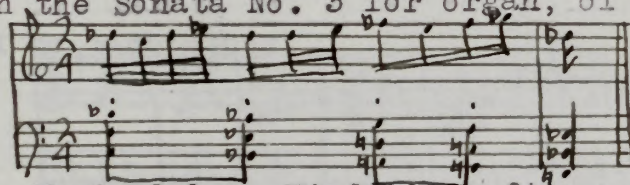
Hindemith's Concerto for cello contains many examples of moving chord blocks, often octaves with fifths inserted, or triads, either in root position or in inversion. In at least one instance the notes in the moving chords are fourths apart.



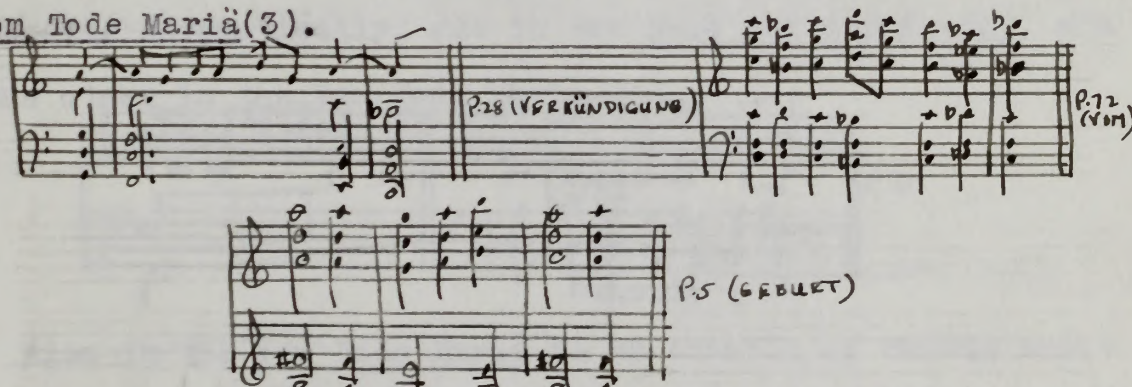
In the Lieder of Hindemith there are several more instances where he uses moving chord blocks in different constructions. In both the Wie Sankt Franciscus and in the Trompeten there are examples of series of chords in which the parts move a perfect fourth apart.



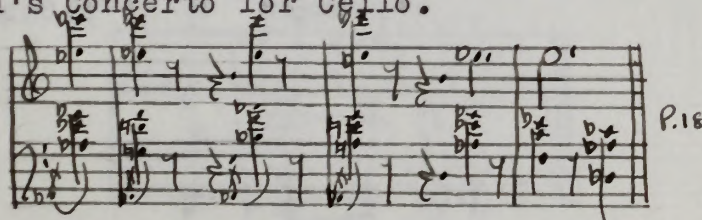
There is a similar example of voices moving a perfect fourth apart in the Sonata No. 3 for organ, of Hindemith.



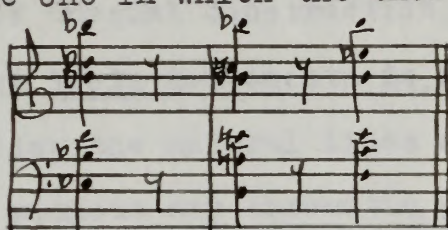
In his Marienleben, Hindemith often uses the device of moving octaves with the fifth inserted. This is found in the Geburt Mariä, in the Verkündigung über die Hirten, and in the Vom Tode Mariä(3).



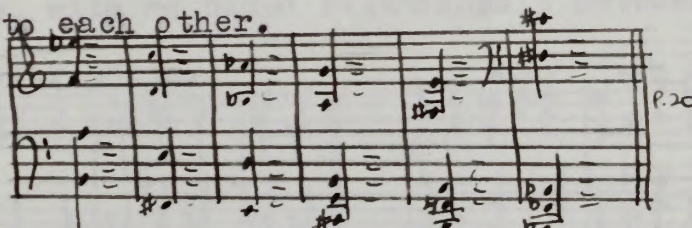
There is a series of incomplete dominant seventh chords in Hindemith's Concerto for Cello.



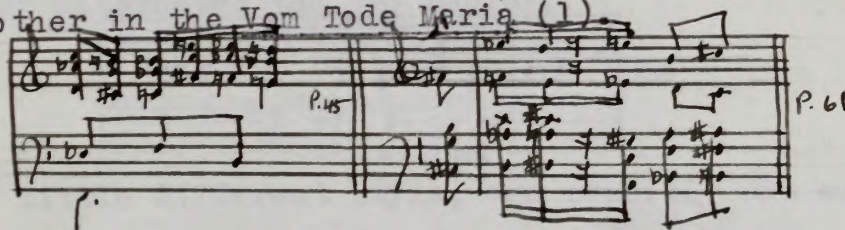
There is one more example of chord blocks in the Cello Concerto, this time one in which the chords are built on perfect fifths.



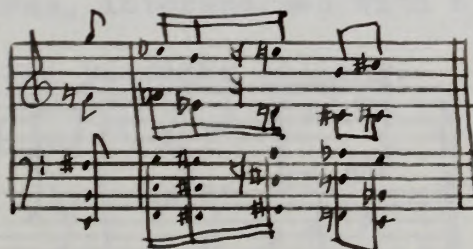
Hindemith's music contains many examples of this device, some of which may be found in his Lieder, and some in the Marienleben. At the end of one of the Lieder, Durch die abendlichen Gärten, is a progression of chords built in sevenths, with the right and left hands harmonically unrelated to each other.



In the Marienleben are at least two instances where there are progressions of incomplete leading-tone sevenths, proceeding chromatically, one in the Rast auf der Flucht, and the other in the Vom Tode Maria (1).



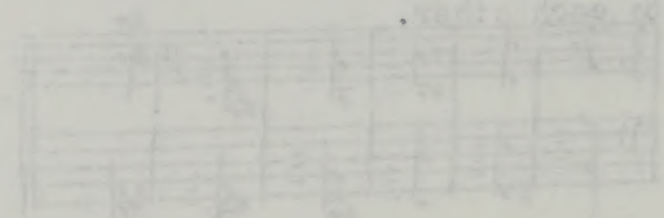
Also in the Vom Tode Maria is an example of chords built in perfect fifths, then becoming altered after the first three chords.



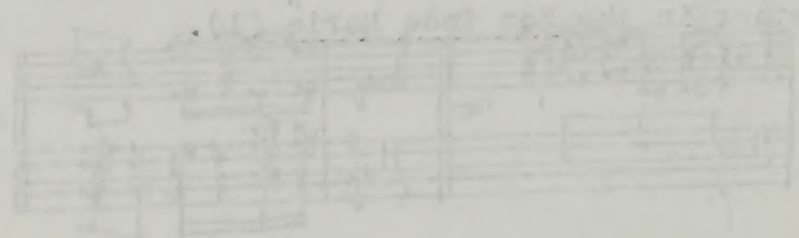
These forms are examples of special forms in the Cello
 Concerto, No. 2, in which the strings are built on



Handwritten musical notation, which contains many examples of this device,
 some of which may be found in the Handbook, and more in the
Handbook, at the end of one of the Handbook, which is
Handwritten, is a progression of notes which is
 written, with the right and left hands respectively un-



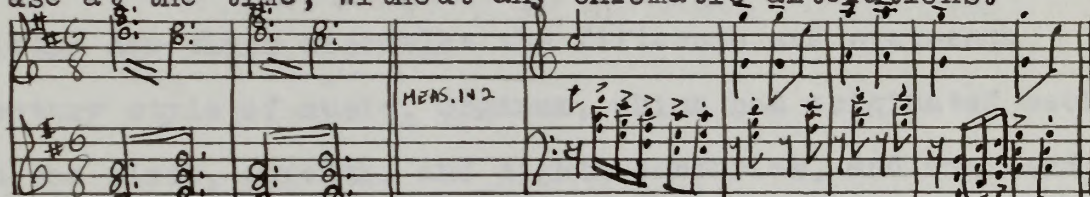
In the Handwritten are at least 10 instances where there
 are progressions of notes which are written, and
 ending chromatically, one in the Handwritten, and



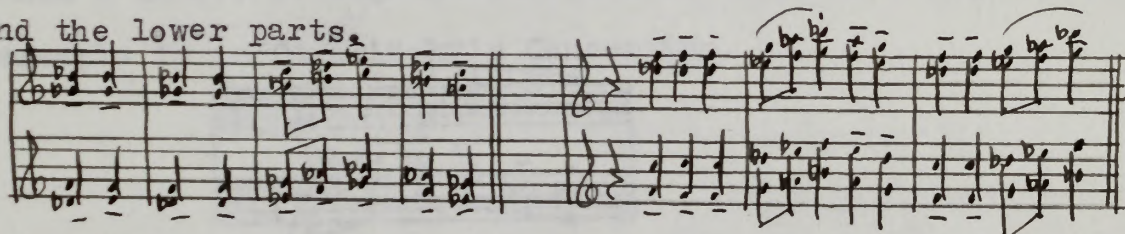
Also in the Handwritten is an example of notes which
 in Handwritten, then becoming altered after the first



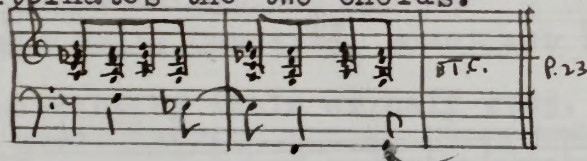
Stravinsky's music contains many examples of moving chord blocks, oftentimes of unequal constructions. Following are two examples from the Trois Mouvements de Petrouchka. In both cases the chords follow the natural lines of the tonality in use at the time, without any chromatic alterations.



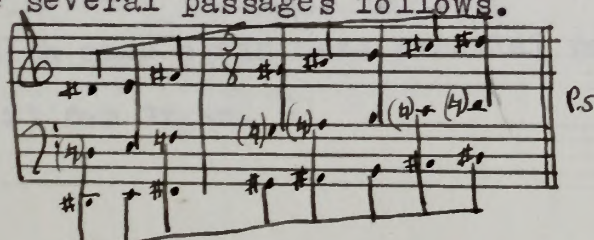
In the Sacre du Printemps, there are several other types of chords used in parallel motion - chords built on thirds and fifths, with no close relationship between the upper parts and the lower parts.




In another instance in the same work, Stravinsky follows a leading-tone seventh chord by an unrelated dominant seventh, and then alternates the two chords.



In a little different style, and possibly not so easily classified as moving chord blocks are several instances in his Concertino where Stravinsky has a series of augmented and diminished octaves, interspersed with a few perfect octaves. One of the several passages follows.



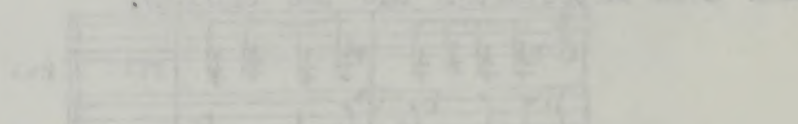
Stravinsky's music contains not a trace of being dead
 dead, of the kind of musical conservatism which is
 the opposite of the modernism of Stravinsky. In both
 cases the chords follow the natural line of the melody.

It is not the case, of course, that any musical composition

 in the form of a melody, there are several other things


of chords used in musical notation - chords which are
 not strictly, with the same relationship between the upper parts

and the lower parts.


In another instance in the same work, Stravinsky follows a
 leading tone seventh chord by an unaltered dominant seventh.

and then following the two chords.


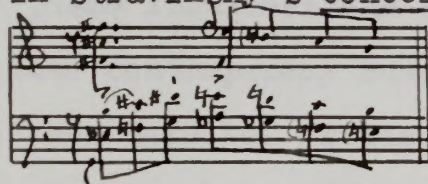
In a little different style, and possibly not so easily
 classified as moving chord blocks are several instances in
 his Concerto where Stravinsky has a series of augmented and
 diminished octaves, interrupted with a few perfect octaves.

One of the several passages follows.


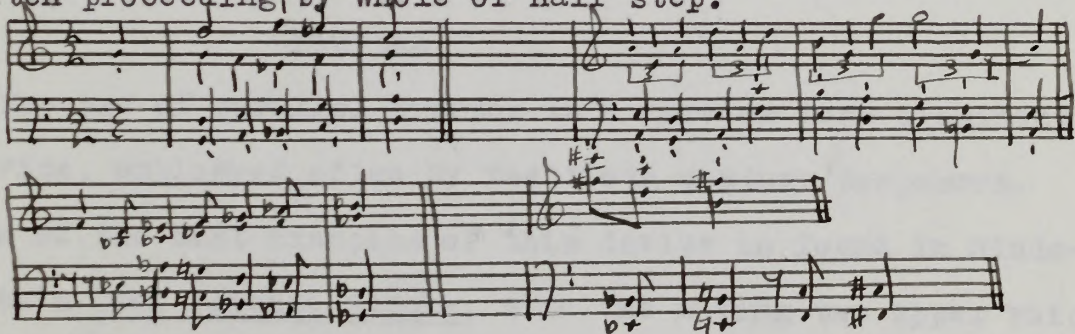
Fifths

As one illustration has already been given, there are many uses of parallel fifths, similar to those of the chord blocks. The fifths may be perfect, augmented, or diminished, or alternately any of these three forms, and create much the same effect, though of a thinner nature. The use of open fifths sometimes resembles the fifteenth and sixteenth century style of music, Organum, which had originated back in the sixth, seventh, and eighth centuries, and was used in the church through Gregorian chants.

As in the previous illustration, there are some occasions when a series of augmented fifths is used. One very striking example is in Stravinsky's Concertino.



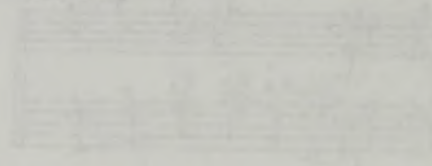
However, the more prevalent tendency seems to be to use a complete series of perfect fifths. Hindemith uses them often in his Cello Concerto, sometimes by skip, but more often proceeding by whole or half step.



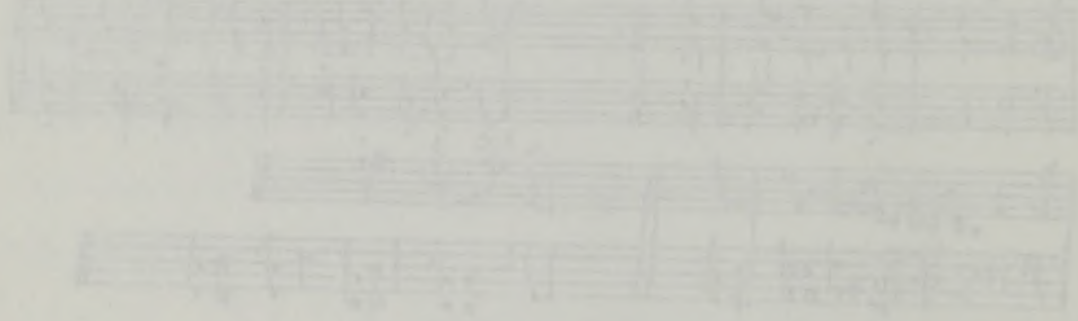
Hindemith once again uses parallel perfect fifths in his Sonata (3) for Organ.

as the illustration has already been given, there are many
uses of parallel fifths, similar to those of the fourth, thirds,
the thirds may be perfect, imperfect, or diminished, or
alternately any of these three forms, and these may be
some other, though of a different kind. The use of these
fifths is not limited to the triads, but may be used
between any of notes, chords, which had contained notes
in the fifth, seventh, and ninth positions, and was used
in the third through various chords.

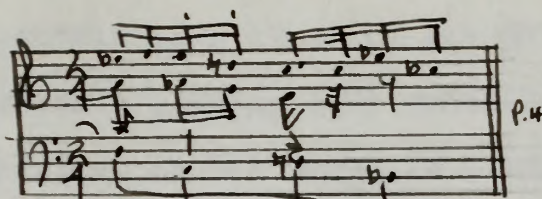
As in the previous illustrations, there are some positions
where a series of unbroken fifths is used. One very striking
example is in Schubert's "Sonata".



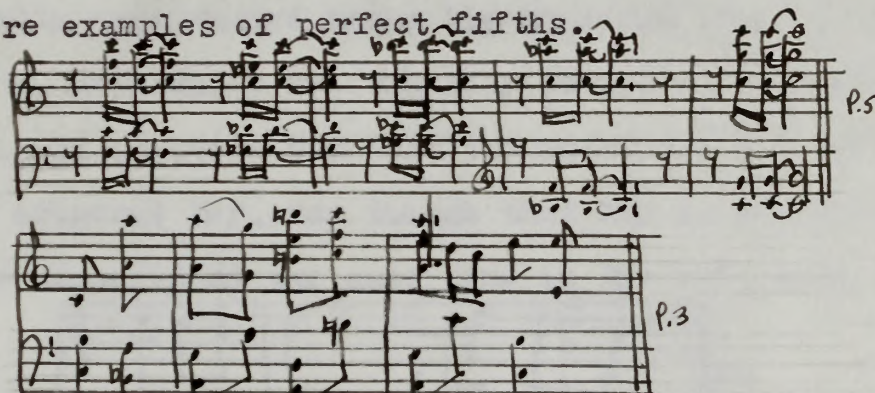
Further, the same persistent tendency seems to be of the
a complete series of perfect fifths. Schubert's "Sonata" has
often in his Fifth Concerto, sometimes of six, but more
often frequently of nine or ten notes.



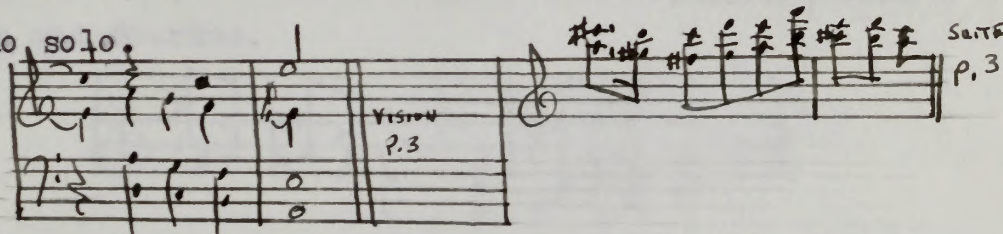
Schubert's "Sonata" again uses parallel perfect fifths in his



In the Drei leichte Stücke für Violoncello und Klavier are two more examples of perfect fifths.

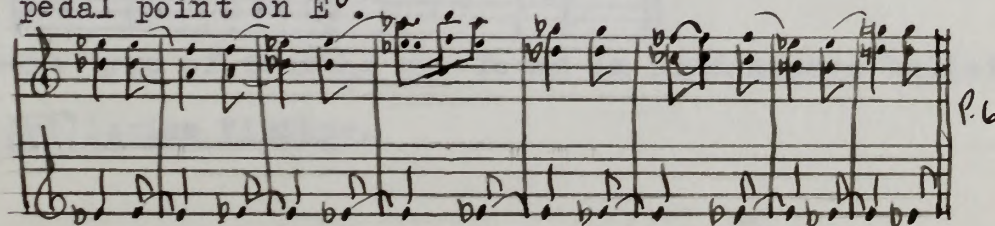


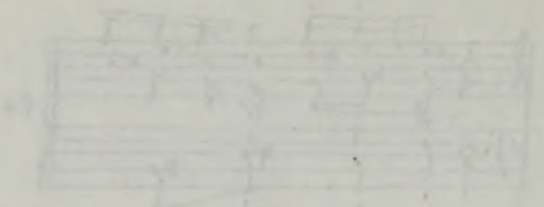
Stravinsky's Suite de l'Histoire du Soldat, for clarinet, violin, and piano furnishes one short example of parallel fifths. Another contemporary Russian composer, Serge Prokofieff, uses parallel fifths in his Vision Fugitive, a piano solo.



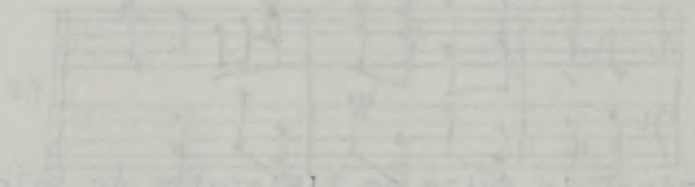
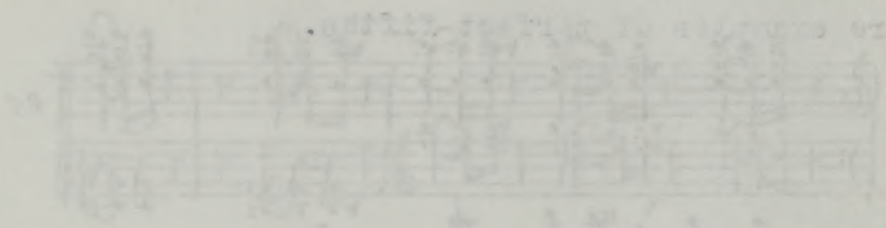
Fourths

The use of parallel fourths is a more or less dissonant device, employed often by twentieth century composers. One of the best examples of this device is found in Hindemith's Drei leichte Stücke, with the moving two upper voices over a pedal point on E^b.





In the first system the Violoncelle and Double Bass



Stravinsky's Violoncelle and Double Bass, for example,

Violin, and other instruments are placed at parallel

positions. Another contemporary Russian composer, Gligor

Prokofiev, uses parallel staves in his Violoncelle



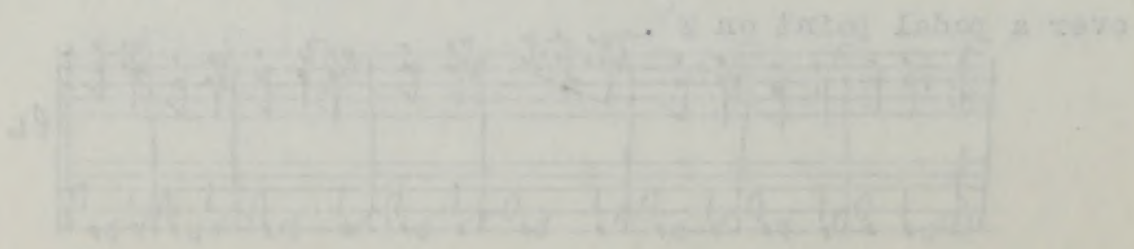
Fourth

The use of parallel staves is a more or less standard

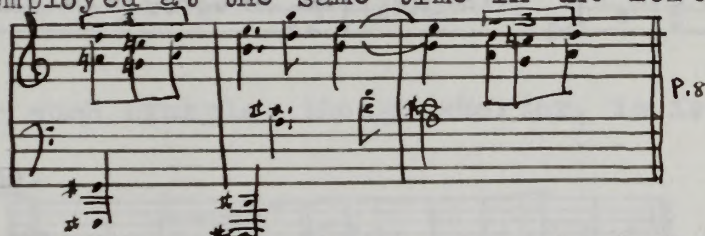
device, employed often by twentieth century composers.

One of the best examples of this device is found in Stravinsky's

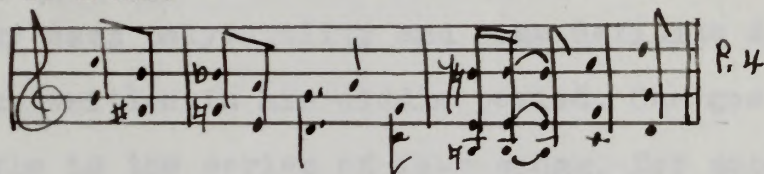
with a Violoncelle and Double Bass, with the moving and upper voices



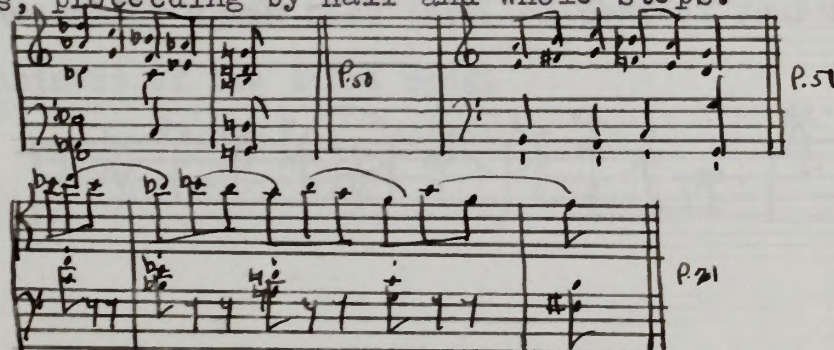
As they contain many other of the devices taken up here, so do Hindemith's Lieder also contain several uses of parallel fourths. In the Traum is a spot where there is a series of fourths, all perfect. Although a similar series of equally constructed chord blocks would imply a changing tonality, here where the tonality is not as strongly defined there is no question but that the notes are all contained in the original key, even though that key is different from the one employed at the same time in the left hand.



There is another place in the second of the Drei leichte Stücke where there is the device of fourths, combined with octaves and fourths.



In Hindemith's Cello Concerto are several series of perfect fourths, proceeding by half and whole steps.

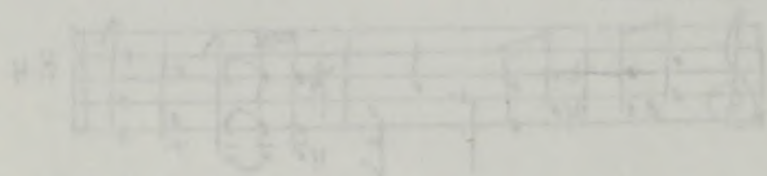


The same type of fourths are found in Hindemith's ballet suite, Noblissima Visione.

is very common among other of the devices taken up here,
 as in Hindemith's *Harmonies* where several notes of
 parallel thirds. In the *Triad* is a short phrase which is a
 series of thirds, all perfect. Although a similar series
 of equally constructed notes would imply a changing
 quality, here where the quality is not so strongly defined
 there is no question but that the notes are all contained
 in the original set, even when the last is a different type
 the one employed at the end of the first hand.



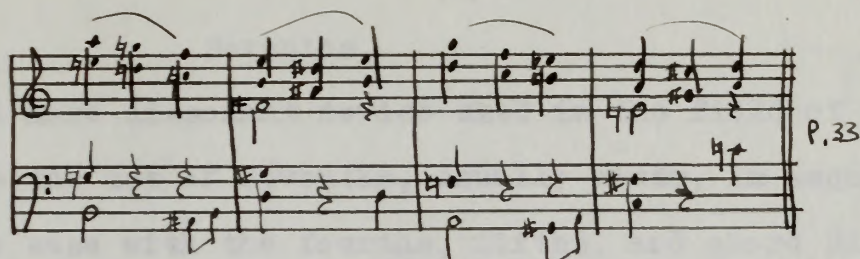
There is another place in the second of the first *Harmonies*
 where there is the device of thirds, combined with
 octaves and fourths.



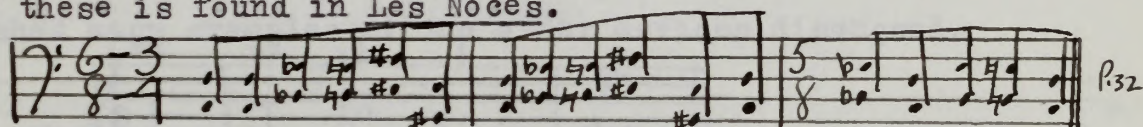
In Hindemith's *Colla Cantata* are several series of thirds,
 fourths, progressing by half and whole steps.



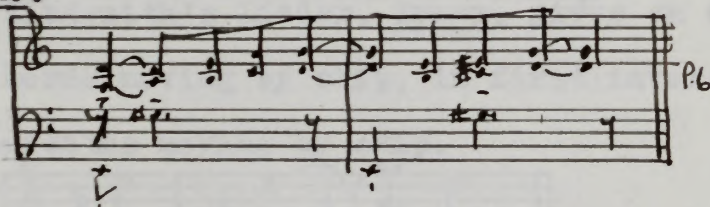
The type of thirds and fourths in Hindemith's *Colla Cantata*
 and in *Harmonies* is very common.



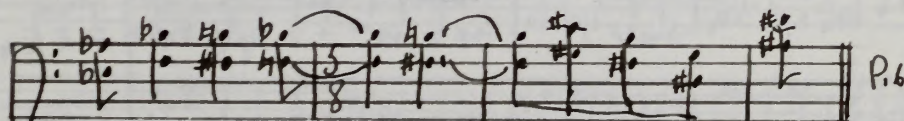
Stravinsky's music has perhaps not quite so many examples of the use of parallel fourths, but there are several excellent passages to illustrate their use. One of the best of these is found in Les Noces.

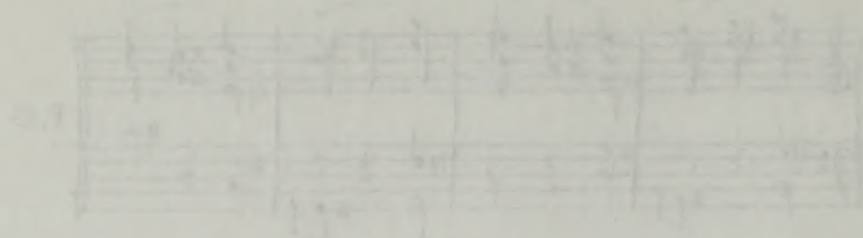


Another such example, though shorter, is found in the Concertino.

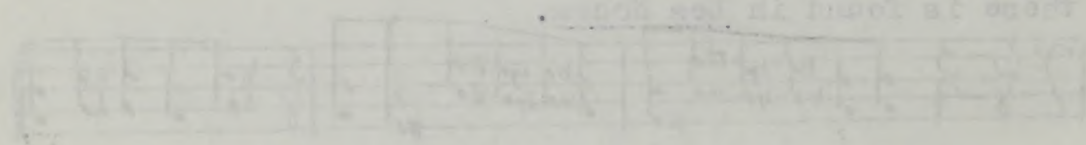


Stravinsky uses polytonality and some definite atonality in the works written in his middle period. One good example of this style is the series of four songs, for soprano accompanied by three clarinets, titled Berceuses du Chat. Here Stravinsky again uses parallel perfect fourths in the accompaniment of the third song.

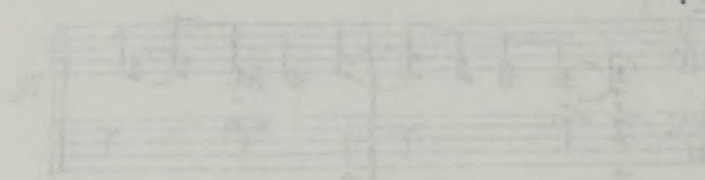




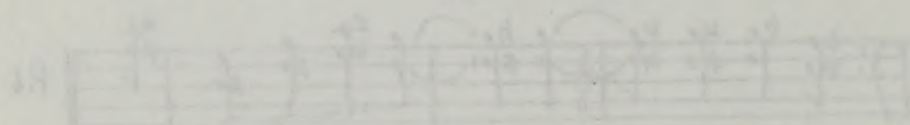
Stravinsky's music has perhaps not found as many examples of the use of parallel thirds, but there are several excellent passages in his music. One of the best of these is found in his *Firebird*.



Another example, though shorter, is found in the



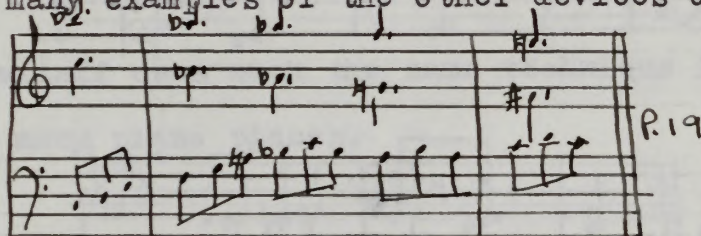
Stravinsky uses polytonality and some doubleton intervals in the work written in his middle period. One good example of this style is the series of four songs, for soprano, accompanied by three pianos, titled *Les Femmes d'Alger*. Here Stravinsky again uses parallel thirds to create an accompaniment of the third song.



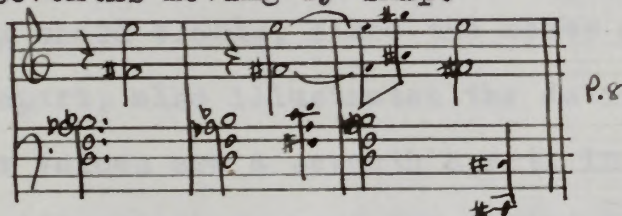
Sevenths

A still more dissonant device used in the field of parallel motion is the use of sevenths, usually minor, in sequence. As in the case with the fourths, fifths, and chord blocks, they move either by step-wise progression or by skip.

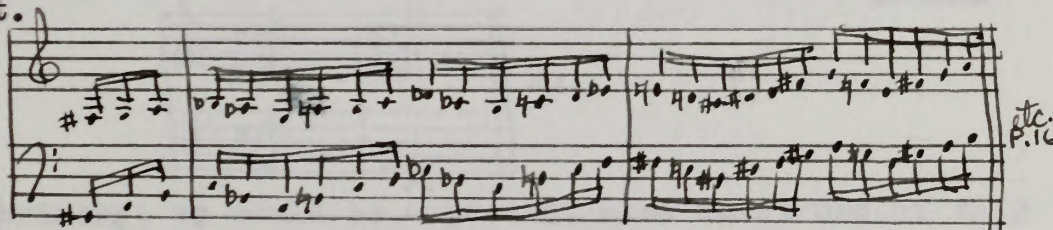
One of the best examples of parallel minor sevenths is found in Hindemith's Cello Concerto, which has already furnished many examples of the other devices discussed.



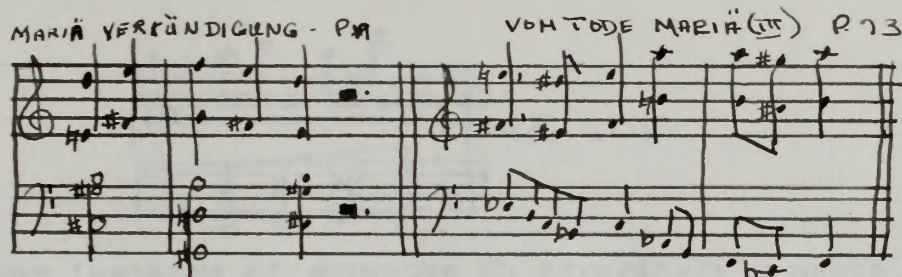
One of Hindemith's Lieder, Traum, gives an example of seventh chords moving by skip, in first inversion, and also of open sevenths moving by skip.



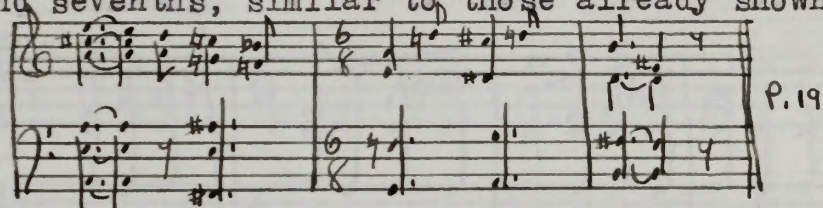
Another of the Lieder, Durch die abendlichen Gärten, contains a passage of moving sixteenth notes, a minor seventh apart.



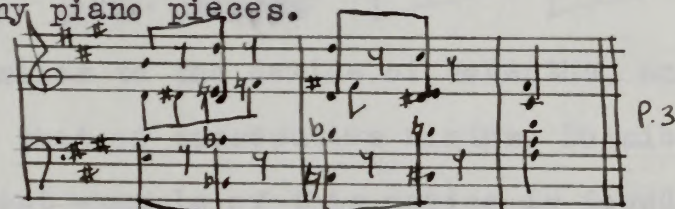
In the Marienleben are similar examples of sevenths in Maria Verkündigung and in Vom Tode Maria(3). This type of sevenths implies lack of, or a changing key or tonal center.



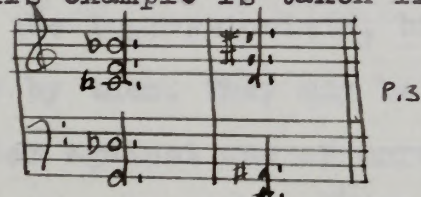
There is in the Hindemith Cello Concerto a combination of fourths and sevenths, similar to those already shown.



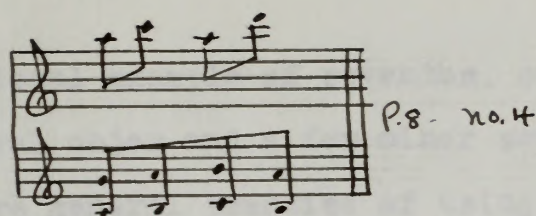
Prokofieff uses much the same technique in his Marche, one of his many piano pieces.



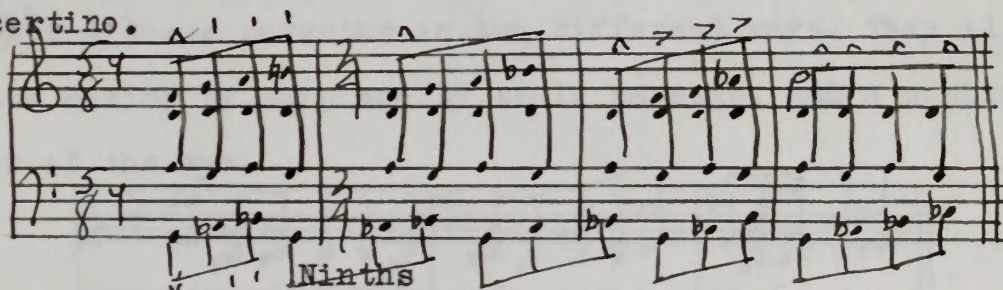
One example which could have been included with the section on moving chord blocks, since the notes of the chords are fourths apart, also illustrates the device of sevenths, since the outer voices are a seventh apart. In reverse manner, some of those illustrations used for moving chord blocks could also be applied to the section here dealing with consecutive sevenths. This example is taken from Scriabine's Masque.



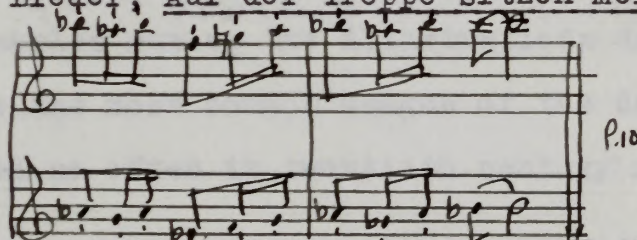
Stavinsky, as would be expected, also makes use of this device in his music. One example illustrates consecutive sevenths which are alternating major and minor, outlining the tonality. This is in the Berceuses du Chat songs.



Another instance of sevenths in Stravinsky's music, less obvious, is in the outer voices of this example from the Concertino.



Very similar to the device of sevenths, and equally dissonant is that of consecutive ninths. Possibly the best and clearest example of this device is found in one of Hindemith's Lieder, Auf der Treppe sitzen meine Öhrchen.

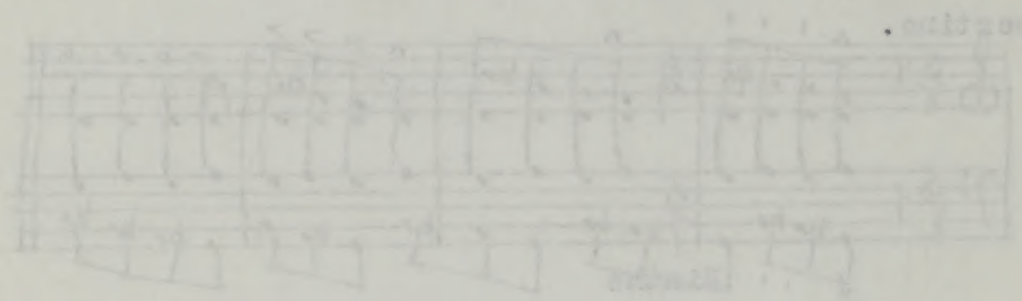


These devices discussed here are some of the chief characteristics of the Impressionistic school. They were not invented by the Impressionists, but were developed to a great degree by them. They may be used "as a stream of harmonic color against one or more free parts, or against another harmonically colored stream"¹, with equally effective results.

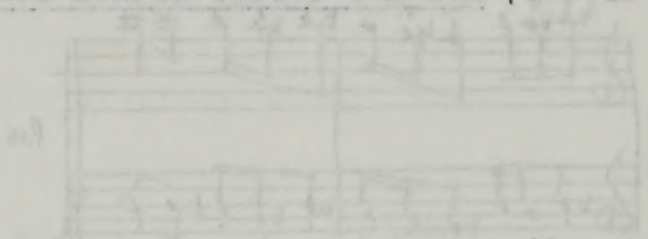
¹ Modern Harmony - Hull



Another instance of ascending in Stravinsky's music, seen
obvious, is in the early version of this example from the

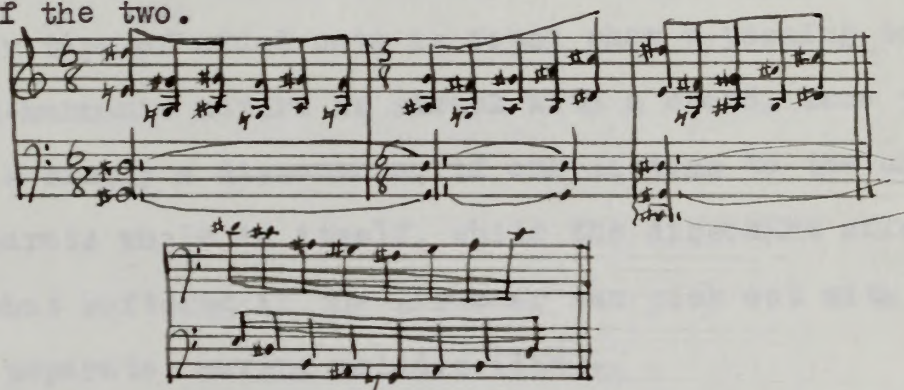


Very similar to the device of ascending, and equally dis-
sonant is that of consecutive eighth notes. Finally the same
and clearest example of this device is found in one of
Elizaveta's songs, but the device is again seen elsewhere.



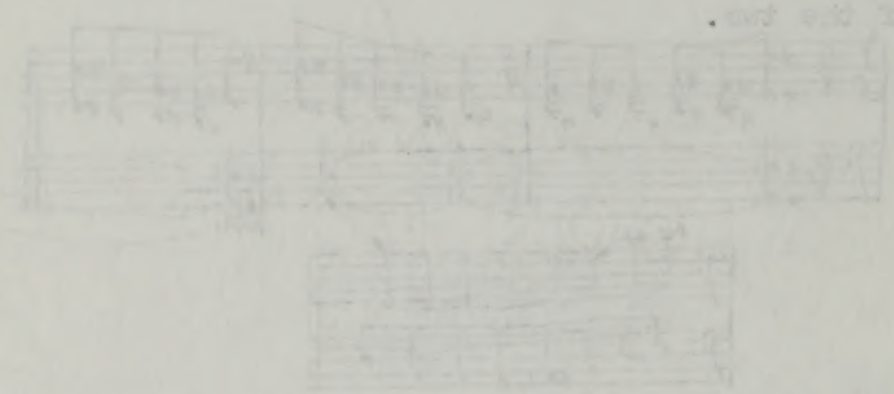
These devices discussed here are some of the most char-
acteristic of the Impressionistic school. They were not
invented by the Impressionists, but were developed to a
great degree by them. They may be used "as a stream of
harmonic color against one or more fixed parts, or against
another harmonically colored stream," with equally effective

One additional example of sevenths, containing in the series several major and a few minor sevenths, in contrast with the more general practice of using minor sevenths entirely, is found in Stravinsky's Marche Chinoise, from Le Chant du Rossignol. There are two such examples, demonstrating these sevenths in two different ways. They illustrate moving by skip and by scale passage, and a combination of the two.



These examples sum up the illustrations used here to demonstrate the most common usages of the device of parallel motion, used so often in twentieth century music.

One additional example of overwriting, containing in the series several notes and a few minor deviations, in contrast with the more general freedom of writing minor deviations entirely, is found in Stravinsky's *Les Femmes d'Alger*. This is almost in complete. There are two such examples, however, creating these deviations in two different ways. They illustrate moving by step and by whole tones, and a combination of the two.



These examples are of the *libertarian* kind, but to demonstrate the more common manner of the *dictated* or *parallel* motion, used so often in twentieth century music.

ADDED NOTES and REPETITION

The term "added notes" may apply to any one of several schemes of musical writing. The so-called "escaped chords" may be called added notes. They are unprepared and unresolved notes, not necessarily chords in themselves, as the name implies, but merely non-harmonic additions to the normal harmony. It has been said that they are allowed to "evaporate," since they merely add a certain type of color to the music, and are not a part of any progression.

Another type of added note is found when a passing tone of a non-harmonic nature is struck with a chord. Here the effect is simply a dissonance, if one listens to the chord as a separate whole in itself, while the dissonant effect is somewhat softened if the listener can pick out with his ear the separate, moving melodic lines.

Another kind of chord which appears to contain one or more added notes, will, upon close inspection, be revealed to have had those notes enharmonically altered. Therefore, it may be discovered that in an enharmonic form, these chords are of a common-place and conservative nature, and sound when played entirely consonant and agreeable to the listener.

A very simple and common type of added notes may be merely chromatic alterations of one or more notes in an ordinary chord, not uncommon to the key. The composers of today make use of all these aforementioned devices, and in addition use added tones which could not be classified in any of these divisions, thereby adding color and individuality to their music.

READING NOTES AND REVISIONS

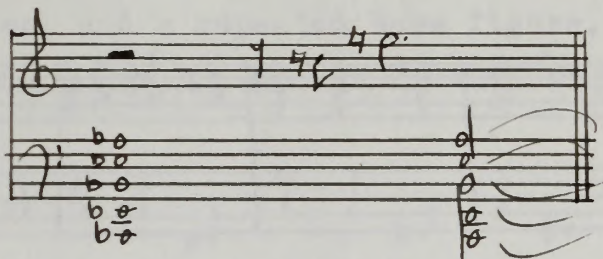
The term "added notes" may apply to any one of several
kinds of additional writing. The so-called "added notes"
may be added notes. They are unorganized and unclassified
notes, but necessarily chords in themselves, as the notes
implied, but merely non-harmonic additions to the normal
harmony. It has been said that they are allowed to "evaporate,"
since they merely add a certain type of color to the music,
and are not a part of any progression.

Another type of added note is found when a passing tone
of a non-harmonic nature is struck with a chord. Here the
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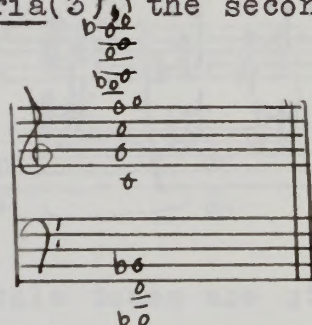
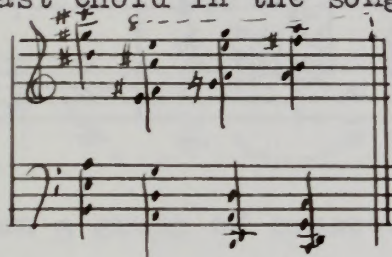
Another kind of chord which appears to contain one or more
added notes, will, upon close inspection, be revealed to
have had these notes experimentally altered. Therefore,
it may be discovered that in an experimental form, these chords
are of a common-place and conservative nature, and sound
when played entirely consonant and agreeable to the listener.

A very simple and common type of added notes may be merely
chromatic alterations of one or more notes in an ordinary
chord, not unusual to the eye. The complexity of today's
use of all these aforementioned devices, and in addition the
added notes which could not be classified in any of these
divisions, thereby adding color and individuality to their music.

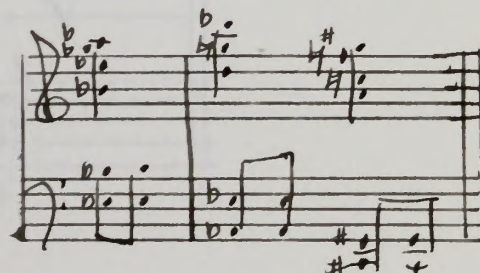
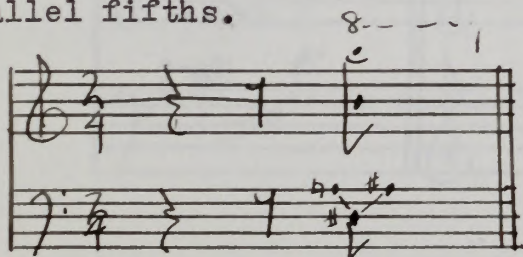
An example of "escaped", or non-harmonic tones, unprepared and unresolved, is found in Hindemith's Trompeten, one of the Lieder.



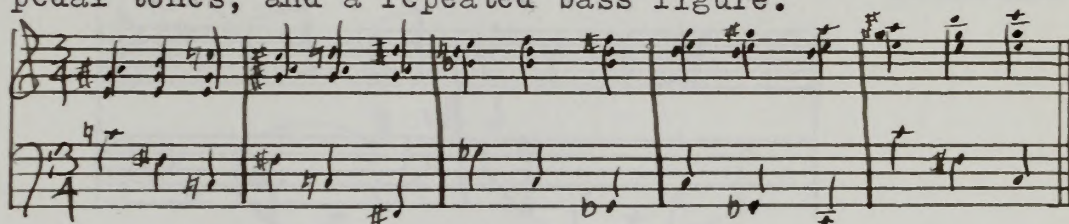
More often, however, are found cases where the added notes are merely struck at the same time as orthodox chords, and have no apparent systematic use. Two such examples are found in Hindemith's Vom Tode Maria(3), the second being the last chord in the song.



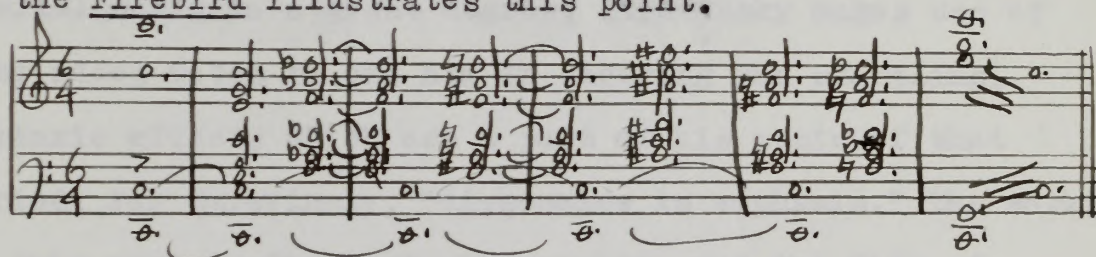
Many instances of added tones are found in Stravinsky's music. In his Marche Chinoise, from Le Chant du Rossignol, are several examples, one in the first chord, and one later on which combines the devices of added notes and parallel fifths.



An example from Stravinsky's Firebird, the Danse Infernale, contains a combination of one chromatically moving voice, two pedal tones, and a repeated bass figure.



From one standpoint, a pedal point may be considered as a form of added note device. This example from the Finale of the Firebird illustrates this point.



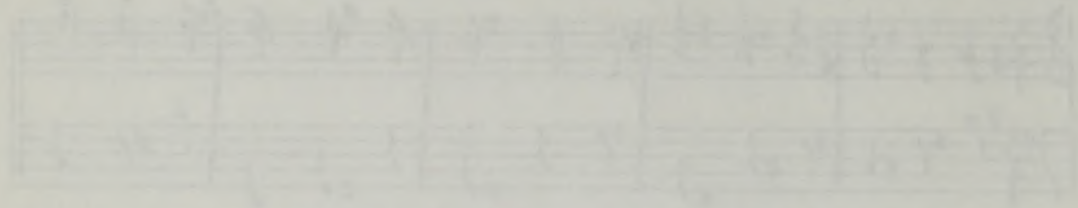
Often a group of consecutive scale tones are struck at the same time, creating one of the most dissonant forms of added notes. These two examples, showing this device, are taken from the Firebird and from the first of Scriabine's Deux Poèmes, Etrangeté.



is similar to the first, the major interval,

contains a combination of the chromatically moving notes,

two notes lower, and a repeated note.



There are three notes, a third note and a repeated note.

A note of equal value to the first, this example is the same.

at the starting illustrates this point.



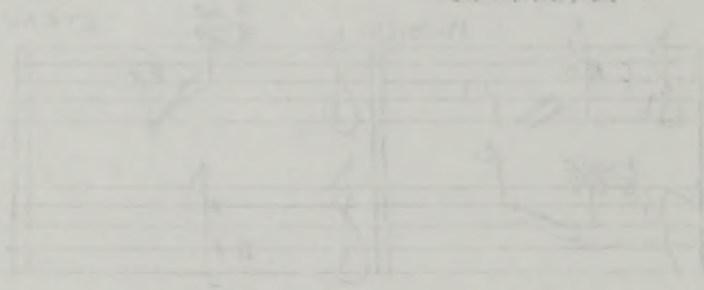
Often a group of consecutive notes is used as a scale of the

same size, providing one of the most difficult types of

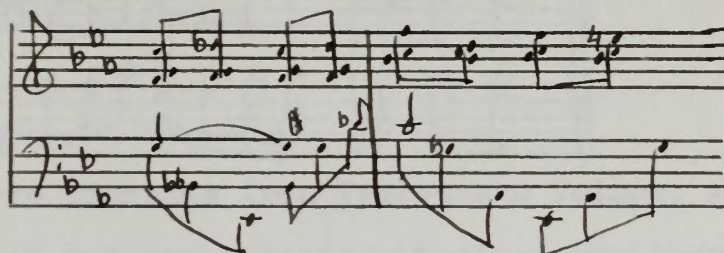
scale notes. These two examples, showing this device, are

taken from the Illustrations and from the First of Examples.

First Example, Illustrations.



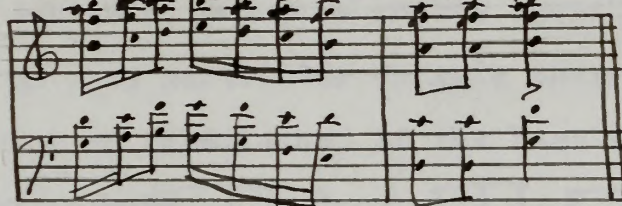
Another pedal point, this time in an inner voice, and therefore not as obvious, but nevertheless acting as an added note, is found in Scriabine's piano piece, Fragilitéé.



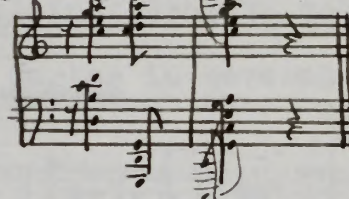
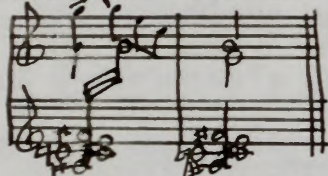
In the works which first attracted the attention of the musical world to a great degree, Stravinsky makes use of many added notes to aid him in securing the startling, barbaric effects which are a part of his music of that period. For Stravinsky, "dissonance is emphasis." The works of this period, Firebird, Petrouchka, and the Rite of Spring especially, show the composer's attention focused on rhythm - the prime requisite of ballet music, which they are, with added tones playing a large part in the musical constructions.

In the Danse Russe from Petrouchka is a passage, used often, which combines the use of added tones with the parallel motion device already discussed. The parallel motion is found in open fifths and sevenths, and the added tones consist of

one tone in each chord, a scale step higher than the root of the chord, played in an upper voice.

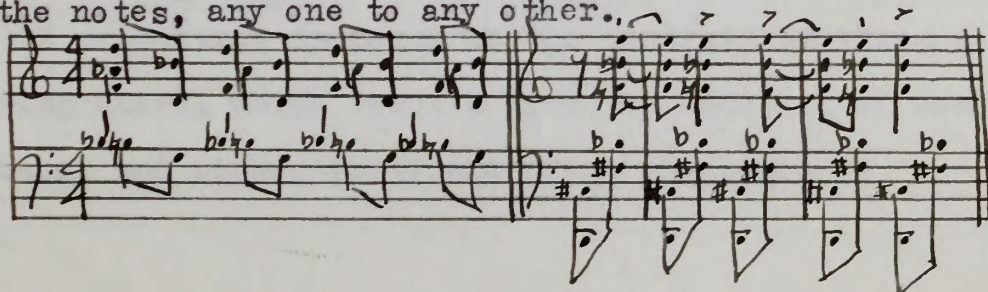


Two more examples from *Petrouchka* follow, one containing a group of non-scale tones, in close position, played together, while the other illustrates the process of adding scale tones to certain easily discernible chords.



DANSE RUSSE

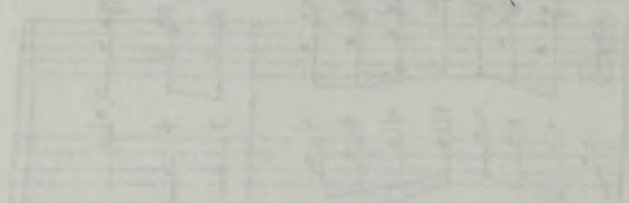
Not only in the works of his first important period of composition, but also in his second, polytonal and at times atonal, period did Stravinsky use many added tones. The work which perhaps contains the most of all of what may be called real atonality is the unusual L'Histoire du Soldat. One of the following examples from this work shows the added note as a pedal point in an inner voice, as has been demonstrated before. The second example shows a combination of two notes used as a pedal point, and a chromatic alteration of one tone in the chord, with a very obscure relationship between all the notes, any one to any other.



DEVIL'S
DANCE

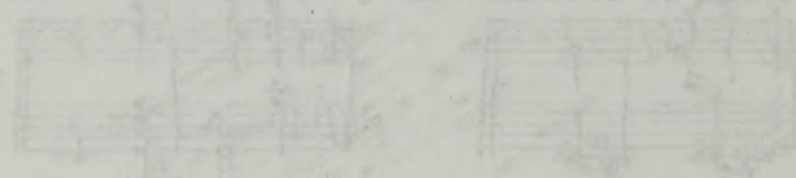
one tone in each chord, a note higher than the rest

of the chord, as in the first example.

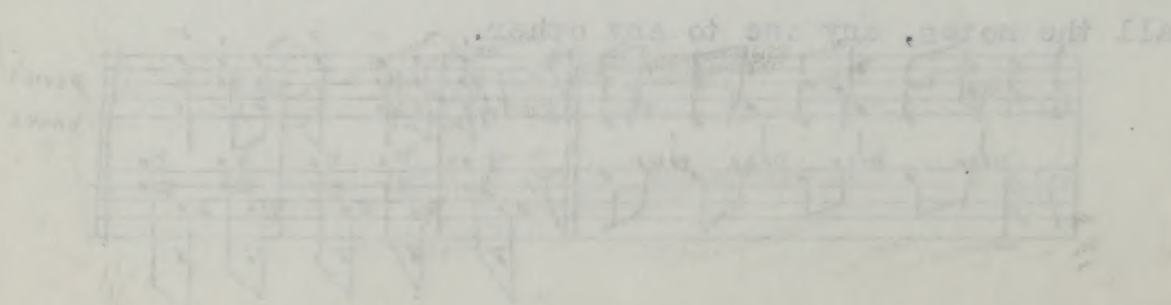


The note examples from the previous section, one containing

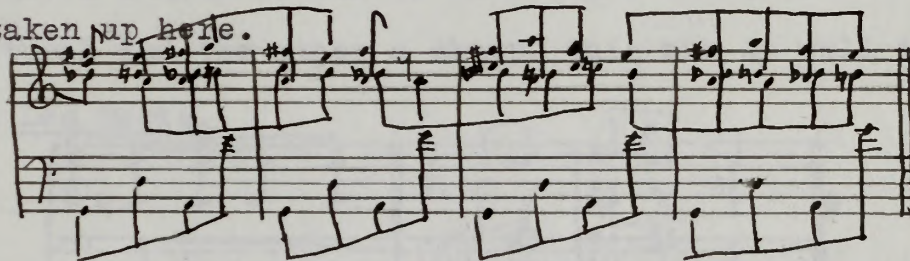
a group of non-scale tones, in close position, played together, while the other illustrates the process of adding scale tones to certain early diatonic chords.



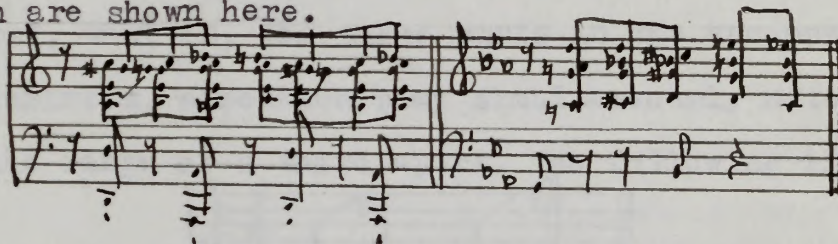
Not only in the works of his first important period of composition, but also in his second, polyphonic and at times atonal, period did Stravinsky use many added tones. The work which perhaps contains the most of all of what may be called non-diatonicity is the *Symphony in E-flat*, one of the following examples from this work shows the added note as a pedal point in an inner voice, as has been demonstrated before. The second example shows a combination of two notes used as a pedal point, and a chromatic alteration of one tone in the chord, with a very obscure relationship between



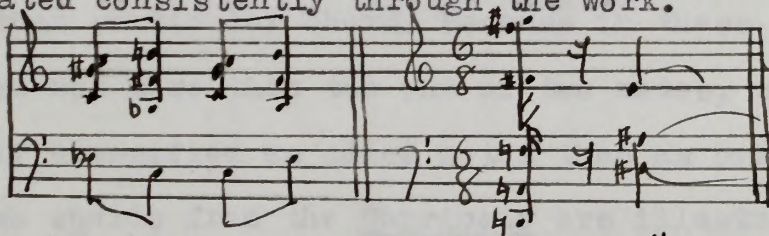
Still another example from L'Histoire du Soldat, also in the Devil's Dance, illustrates how three separate voice parts, combined, can form chords containing so-called added notes. In this particular example there is also illustrated the device of repetition, in the bass figure, which is to be taken up here.



This same technique of combining separate voice parts is found in Stravinsky's Jeu de Cartes in several places, two of which are shown here.



Again Stravinsky uses the same device in Les Noces, and the combination of notes in this measure is repeated over and over throughout the work. The second example following is a seemingly unrelated sequence of two chords, which also is repeated consistently through the work.

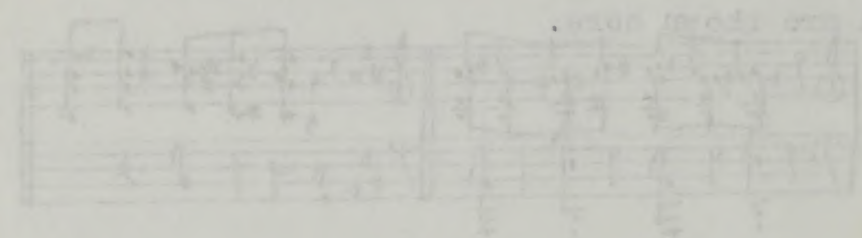


Direct repetition is found in the continued striking of the following chord, which results from the addition of seconds, both major and minor, above and below the basic C.

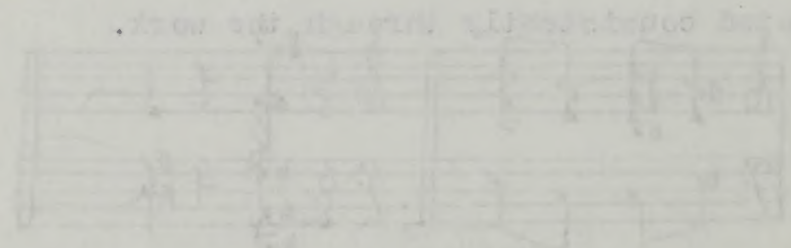
Still another example of the Illustration of the is the Devil's Dance, illustrated on these separate notes, combined, and form chords containing no-called added notes. In this particular example there is also illustrated the device of repetition, in the last figure, which is to



This same technique of combining separate notes is found in Illustration of the in several places, two

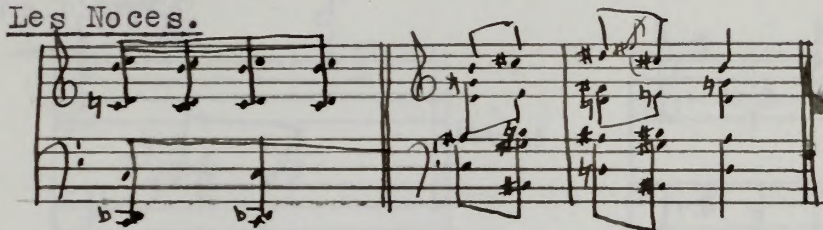


Again Illustration of the uses the same device in Devil's Dance, and the combination of notes in this manner is repeated over and over throughout the work. The second example following is a specially selected sequence of two chords, which also

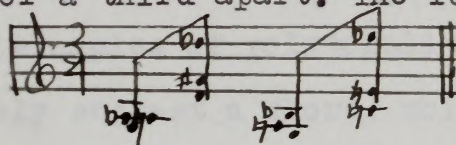


Direct repetition is found in the Devil's Dance of the following chords, which repeat from the addition of seconds, both major and minor, above and below the base 3.

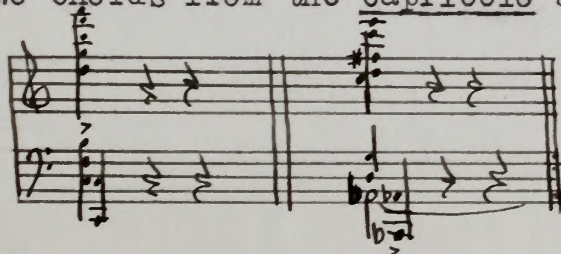
This is also taken from Les Noces. The second example here illustrates not only the combining of different voice parts to result in added notes, but also the chromatic alteration of several of the notes, the result being that in several instances a note is struck with its octave, with one note a natural and the other a sharp. This one as well is taken from Les Noces.



In the Berceuses du Chat, Stravinsky uses added notes in "clusters", that is, the three parts in the accompaniment, three clarinets, sometimes play simultaneously notes all within the range of a third apart. The following illustrates this.



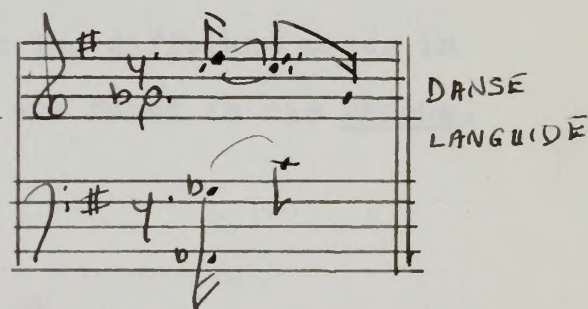
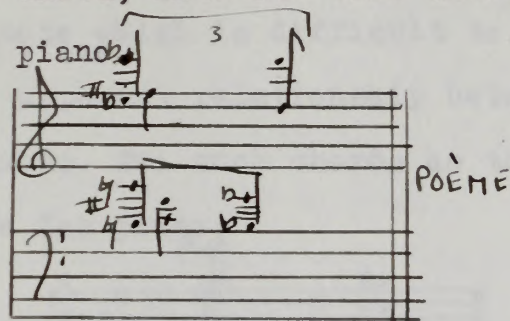
In Stravinsky's Capriccio for piano and orchestra, there are several instances of the use of a conventional chord, with one or two extra notes which belong in the tonality but not in that particular chord. Because in these instances there are not more than the one or two notes, they are more logically classified as added notes than as polyharmony. These two chords from the Capriccio are illustrative.



This is also seen from the example here illustrated and also the combination of different voices to result in added notes, but also the characteristic of several of the notes, the result being that in several instances a note is added to the octave, while one note is added and the other a sharp. This one as well as taken



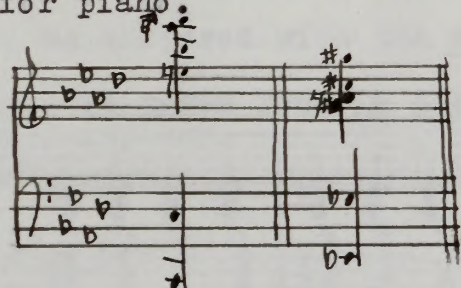
Two contrasting uses of added notes, taken from Scriabine's Poème - Nocturne and from his Danse languide follow. In the first, there seems to be merely a group of notes, with no basic tonality, while the second is an obvious dominant seventh chord, with one tone added. These pieces are works for the piano.



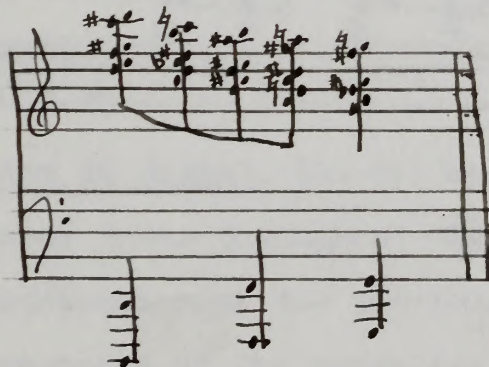
In Scriabine's Guirlandes and also in his Flammes sombres are instances of large sustained chords, which, enharmonically written, would be examples of polytonality. The sevenths in the left hand merely suggest a chord, while the B^b and the G^b, respectively, in the right hand chords, if changed to A[#] and F[#], would result in a normal triad in second inversion. Thus, depending on the view taken of them, they may be considered as either added notes or as an example of polytonality.

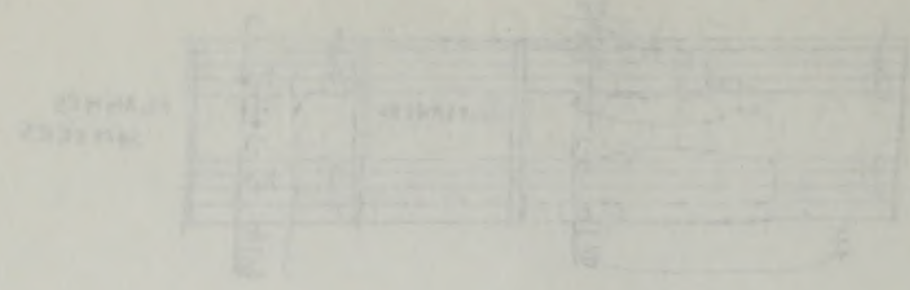


The Russian composer, Prokofieff, uses also the type of added note which is difficult to classify. There is very little apparent relationship between the different notes in the chords. Two such chords as this are found in his Marche, a piece for piano.

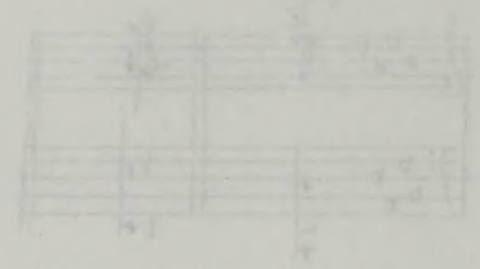


The combination of two seventh chords, with the notes one tone apart, forming tone clusters, and giving a most dissonant effect, is found in this measure taken from Prokofieff's ballet, L'Enfant Prodigue.

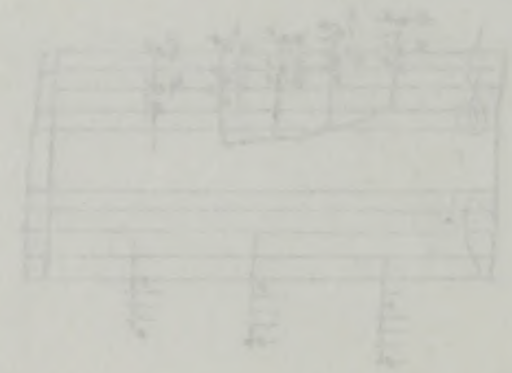




The Russian composer, Tchaikovsky, uses also the type of
a third note which is difficult to classify. There is very
little apparent relationship between the different notes in
the chords. Two such chords as this are found in his Waltz,
a piece for piano.

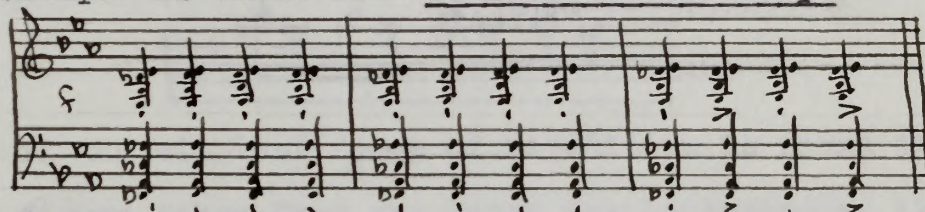


The combination of two seventh chords, with the notes one
tone apart, forming tone clusters, and giving a most disson-
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Solo, Violin Concerto.

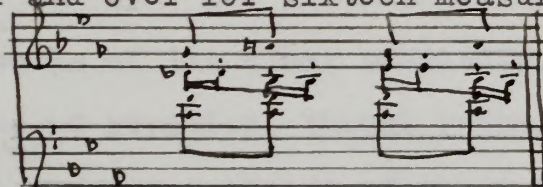


Repetition

One of the methods by which Stravinsky gained the new and barbaric effects so characteristic of his music was by placing so much emphasis on rhythm, unusual and irregular. And one way of emphasizing rhythm is through the device of repetition. The following example has already been used to illustrate added notes, but it also shows the way Stravinsky gains his effects, both through the repetition and through the irregular accents. When played by his equally unusual combination of instruments, this passage is most startling and out of the ordinary, as compared with the work of previous composers. The example is taken from Le Sacre du Printemps.



There is another passage in the same work which shows the effect of the combination of three sets of repeated figures, played over and over for sixteen measures.



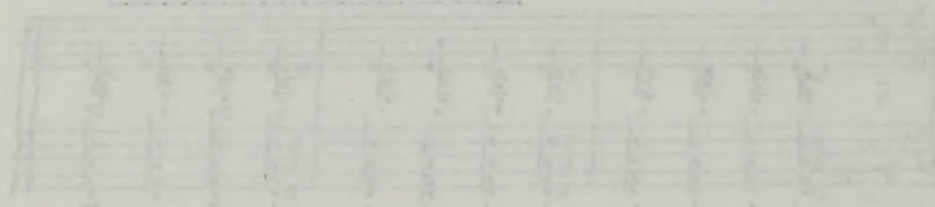
In L'Histoire du Soldat, the following measure-long figure is repeated many times throughout the piece in the violin part. This contrasts with the previous examples in that, where they consisted of the repeating of single notes or chords, this one consists of the repetition of a whole melodic figure.

Repetition

One of the reasons why which rhythmically gained the new and
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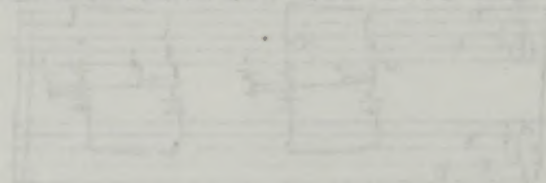
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The example is taken from the Second Piano Concerto.



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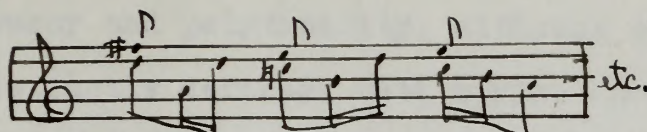
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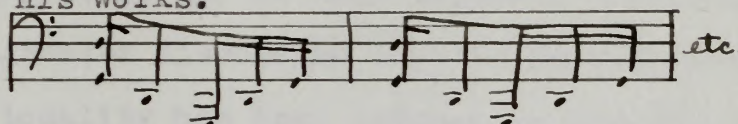
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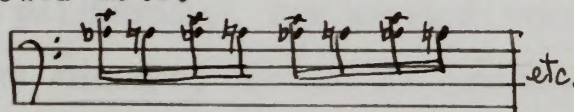
dic figure.



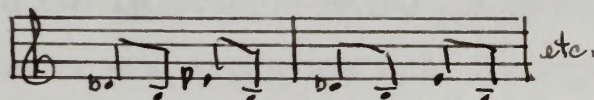
Another instance where Stravinsky repeats a whole measure several times, this time as a bass figure, is in Le Rossignol. This example is characteristic of many such places throughout his works.



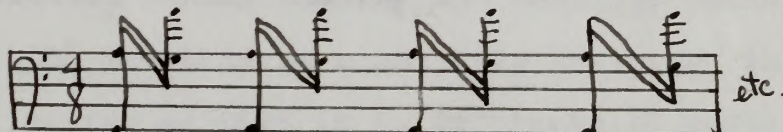
Whereas the previous example was built upon the outlines of one chord, the following passage from Jeu de Cartes consists merely of a third, followed by the chromatic alteration of the lower note.



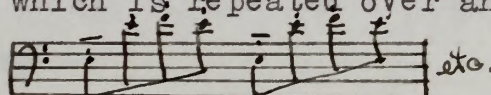
One of the simplest forms of repetition is found in this short figure taken from the Danse des Adolescents, in the Rite of Spring.

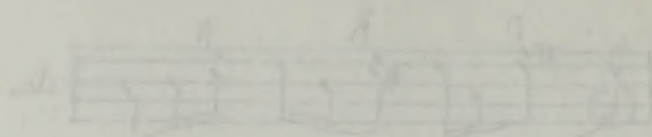


From the works of the other composers taken up here are many examples of repetition, though perhaps, in any one of them, not to the great extent of those in Stravinsky's music. In one of Hindemith's Lieder is found this repetition of ninths.

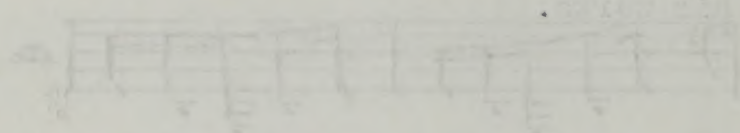


In one of Prokofieff's piano pieces, called Prelude is the following figure, which is repeated over and over in the left hand.

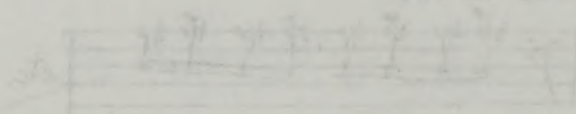




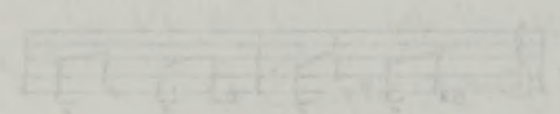
Another instance where repetition is used is in the second part of the first movement of the first symphony of Beethoven. This time as a form of contrast, in its place.



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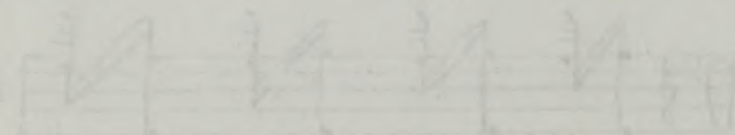


One of the most famous examples of repetition is found in the first movement of the first symphony of Beethoven. This time as a form of contrast, in its place.

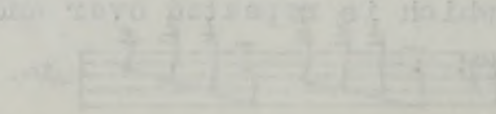


From the works of the other composers taken up here are very examples of repetition, though perhaps, in any one of them, not to the great extent of those in Beethoven's.

One of the most famous examples of repetition is found in the first movement of the first symphony of Beethoven. This time as a form of contrast, in its place.



In one of Beethoven's piano pieces, called "Für Elise" is the following figure, which is repeated over and over in the first part.



Polyharmony - Polytonality

Polyharmony and polytonality, although closely related, may be distinctly defined. Both styles involve the combination of two or more differing harmonic streams. In polyharmony, the notes may all be fitted into or closely related to one tonality. On the other hand, polytonality involves the combination of two or more separate tonalities, with a resulting greater dissonance than is usually found in polyharmony. Polytonality has been defined as something which "refers to certain features of contemporary experiment in which more than one tonality is involved in a single harmonic structure."*

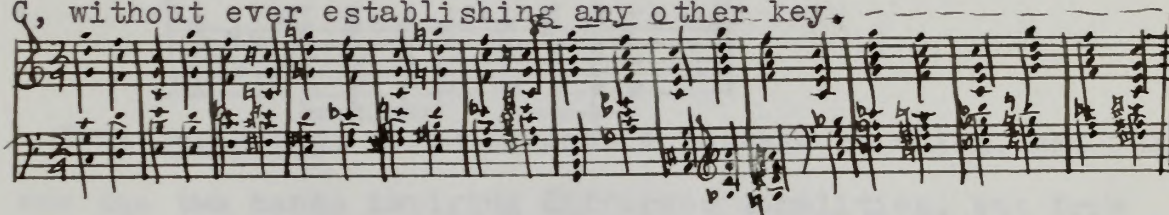
Examples of polytonality may perhaps be more easily found than those of polyharmony, for several reasons. They are more obvious to the eye, due to the sharper differences in the chords - in notes and in accidentals. And for another reason, since the notes in polyharmony are all contained in the same tonality, there is often a choice between calling an example by that name, and including all the notes in one all-inclusive chord name.

At times it is difficult to state definitely that a certain tonality is implied, if, for instance, there are only two notes by which to judge, but in general, the movement of the voice parts indicates fairly clearly the tonality implied. At other times, the tonality is constantly changing, in one part or in both parts, so that it is difficult to define.

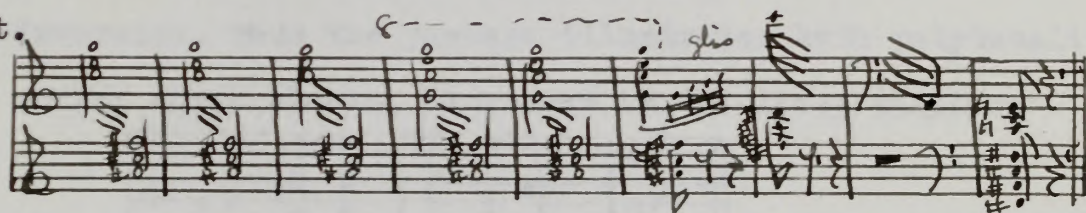
In general, these devices are most interesting to present-day composers, and are used by them to a great extent.

* Grove's Dictionary

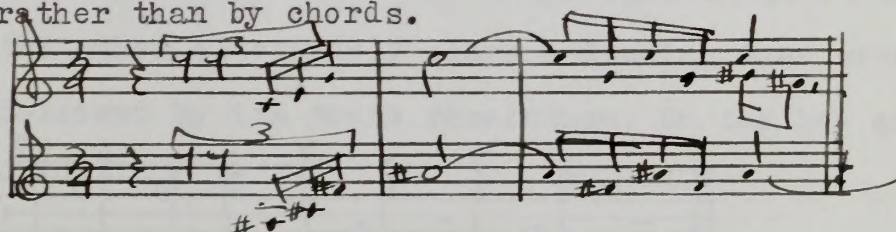
An example which has already been used for an illustration of moving chord blocks is also an example of polyharmony. Here the upper parts are obviously in the key of C major, while the lower parts, in spite of the dominant sevenths played chromatically, always return to a chord in the same key of C, without ever establishing any other key.



Another example from the same work is a definite and clear instance of polytonality. The tonalities of C major and F# major are combined here, in the last measures of this movement.

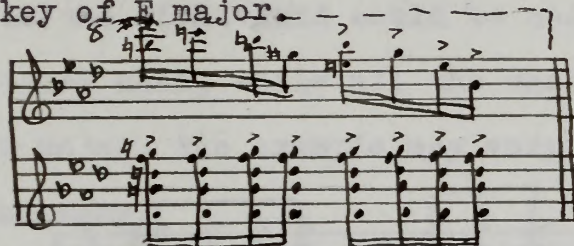


A similar example of the combination of the same two keys is also found in Petrouchka, in the theme of the character of that name in the ballet. Here the treatment is a little different, in that the tonalities are outlined by two moving parts, rather than by chords.

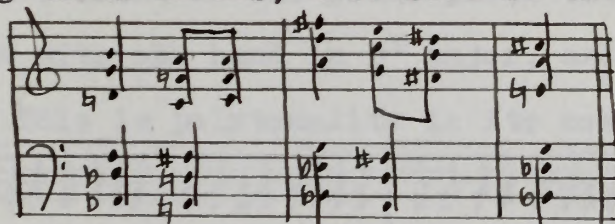


Another example from the music of Stravinsky, about which there may be no doubt, is this measure of polytonality, taken

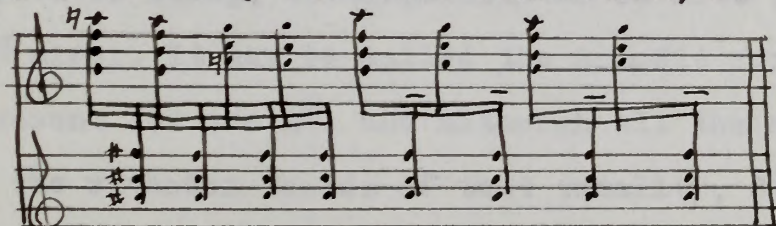
from the amusing impression of a card game, Jeu de Cartes. Here is the combination of a dominant seventh chord in the key of C major with the outlines of a tonic six-four chord in the key of F major.



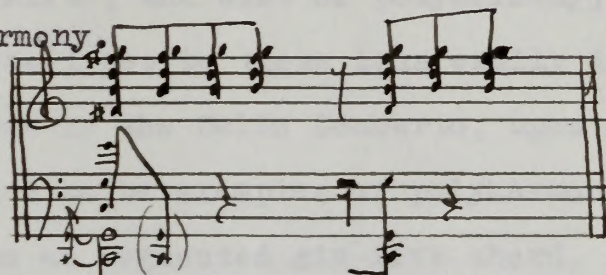
From Les Noces, there follows a passage in which, not only are the two hands implying different tonalities, but from chord to chord, each hand is also constantly changing tonality. This effect is accomplished by the use of equally built moving chord blocks, each chord being a triad in second inversion. Thus the passage illustrates both polytonality and moving chord blocks, discussed in the first chapter.



Still another example from Petrouchka contains the same combination of keys, C major and F \sharp major, but treated in a little different way. While one hand repeats the F \sharp tonic chord, the other alternately plays a leading tone seventh chord, followed by its tonic resolution, in the key of C.

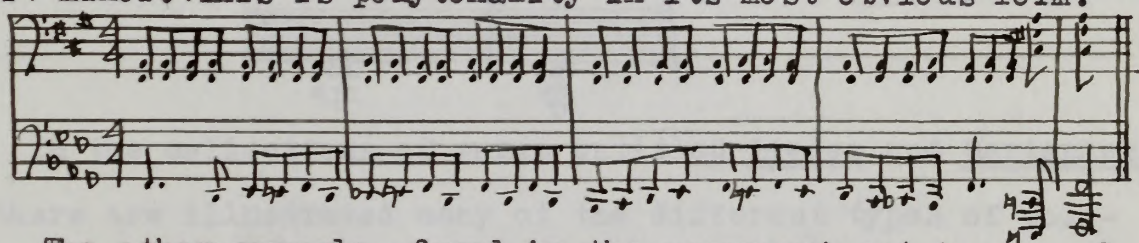


An example which is closer to polyharmony than the preceding, and yet is still polytonality, is seen in the Stravinsky Concertino. The key of C is implied in the left hand, strongly, while the right hand could be called in the key of G. On the other hand, while all the chords are contained in the key of G major, the example may very logically be termed one of polyharmony.



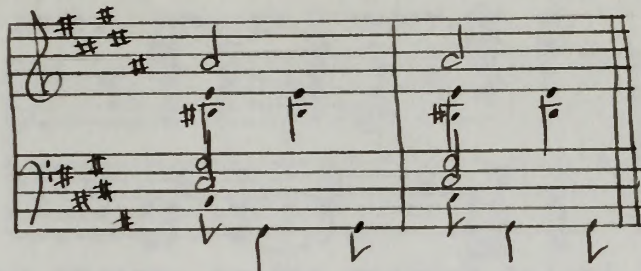
Turning to the works of Prokofieff, we find two contrasting examples - one which is very strong polytonality, and the other which more likely should be called polyharmony.

The first is found in his piano piece called Sarcasme, which is written with one hand in D^b major, and the other hand in F[#] minor..This is polytonality in its most obvious form.



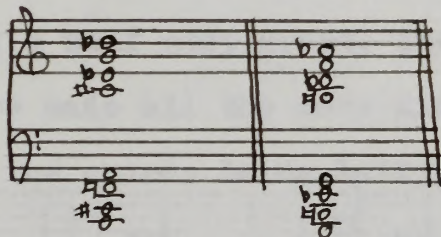
The other example, found in the accompaniment in one of Prokofieff's "Five Melodies for Voice and Piano", may be analyzed as being, although written in five sharps, the key of C[#] minor. It may be called the melodic form of the minor, to account for the A[#], and although all the notes do not fit into the orthodox chords of that tonality, C[#], still there is no question of there being more than one tonality.

Besides being called polyharmony, the A \sharp may be considered³⁰ as an added note to a tonic seventh chord in c \sharp minor.



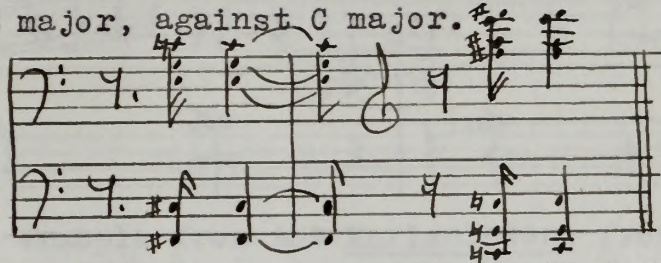
The works of Hindemith contain many and varied examples of polytonality, and some of polyharmony, ranging from the most obvious types to those less easily discovered.

Two chords in the Cello Concerto, upon close inspection, are revealed to be examples of polyharmony. While the upper voices form an augmented six-five chord, in root position, the lower notes are those of a triad in first inversion, built upon the third degree of the scale. Thus the examples are found to be, respectively, in the keys of D minor and C minor.

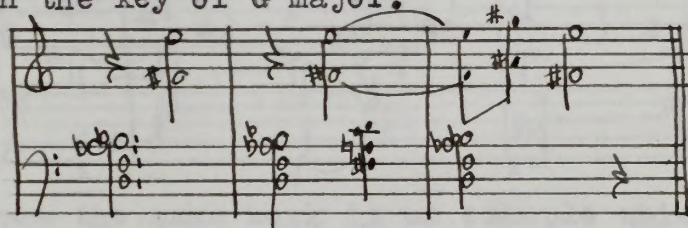


In the collections of songs entitled Lieder and Marienleben there are illustrated many of the different types of polytonal devices used by Hindemith. In the first group is found an example similar to the ones in Stravinsky's Petrouchka where the keys of C major and F \sharp major were combined. The treatment here is a little different from the three found in Petrouchka, consisting merely of a succession of chords, alternating the two keys between the two hands. One of the chords is a dominant seventh, built on F \sharp , implying the key

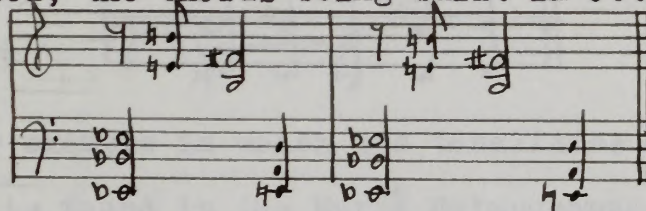
rather of B major, against C major.



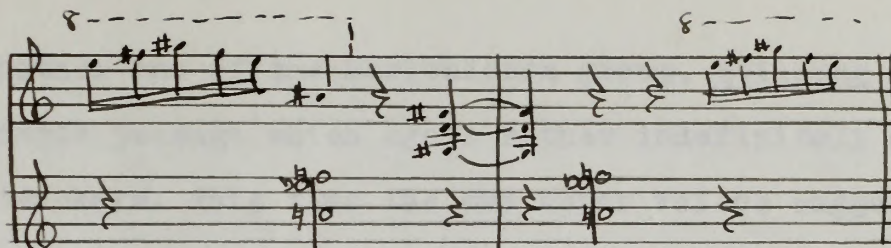
Also in the Lieder, in the section called Traum, is an example which demonstrates not only polytonality, but also the devices of moving chord blocks and moving sevenths already discussed. Here an implied key of B major is combined with a dominant seventh of E^b major, as well as the dominant seventh in the key of G major.



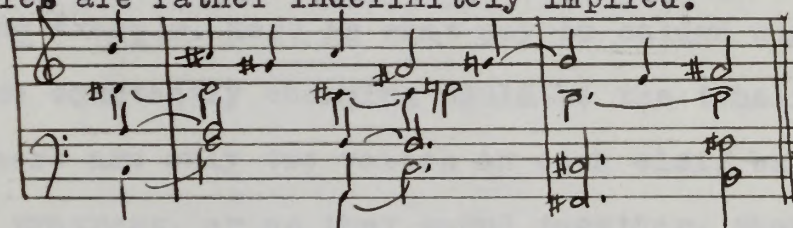
In the same work is a more dissonant passage which combines two keys only a half step apart. Their tonic chords are outlined, and are made all the more dissonant since the thirds are omitted, the chords being built in octaves and fifths.



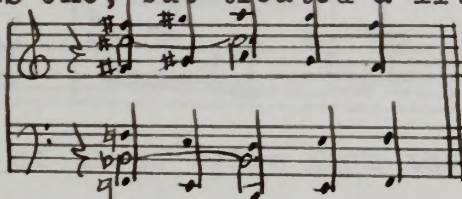
In another of the same group of Lieder, Die trunkene Tänzerin, is an example similar to the first one taken from Traum in the lower voices, while the treatment of the upper voices is different. The upper notes for the most part imply the key of A major, while the lower notes imply B^b major. This is another instance of two keys only a half step apart.



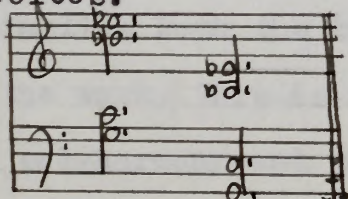
The first example from the Marienleben, from Mariä Verkündigung, may be said to fall in the same category, that of the combination of two keys only a minor second step apart, if the two keys used here are judged to be B major and C major. Since there are only two voices in each key, the tonalities are rather indefinitely implied.



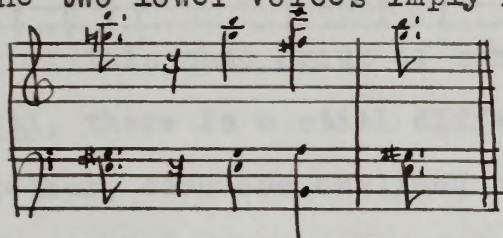
Again from the same work is an example which seems to combine the keys of F major and F[#] minor, a similar device to the previous one, but treated a little differently.



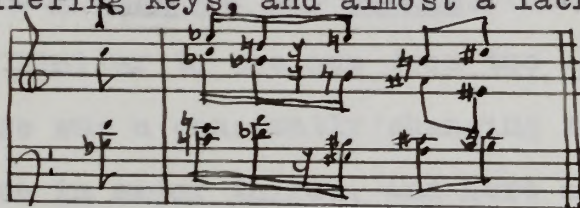
Another example in which the tonalities are but vaguely outlined is found in the Mariä Heimsuchung, from the same group. Here, by means of two notes, a fourth apart, each key is suggested - E^b major in the upper parts and C major in the lower voices.



In another one of the Marienleben group, Stillung Mariä, is a simple passage which again rather indefinitely outlines two keys. This time the two upper voices suggest G major, and the two lower voices imply E major.

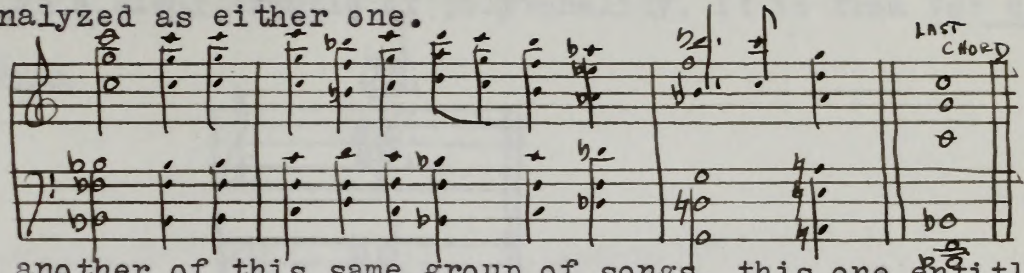


In the first of the three songs entitled Vom Tode Mariä are several passages the same as or very similar to the following example. Here is what may be called almost atonality, so constantly changing would be the tonality. Here again there are only two voices on each clef, but taken as they progress, or as they sound together, they suggest widely differing keys, and almost a lack of any tonality.

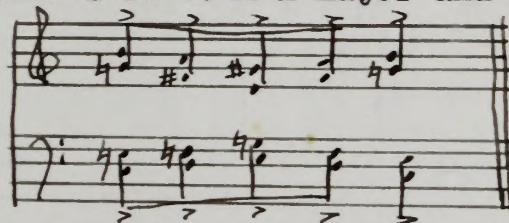


In the third of these songs from the Marienleben cycle is a passage which seems to be most logically analyzed as polyharmony. With a few chromatic alterations, it may be said to be mostly in the key of B^b major. On the other hand, the final chord in the song, which follows the other example here, is very similar to the chords in the example, and at the same time implies both the keys of B^b major and C major at the end of the work. This is an instance which is closely linked to both polyharmony and to polytonality, and well may

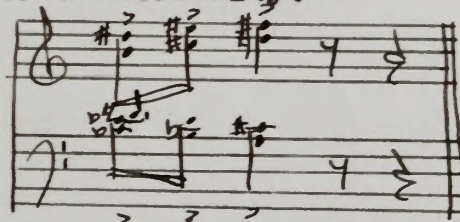
be analyzed as either one.



In another of this same group of songs, this one entitled Geburt Christi, there is a still different treatment of two keys together, each one outlined by only two voices. Here the lower voices outline the tonic triad in C major, while the upper voices outline in the one short passage the tonic triads of both E major and E minor.

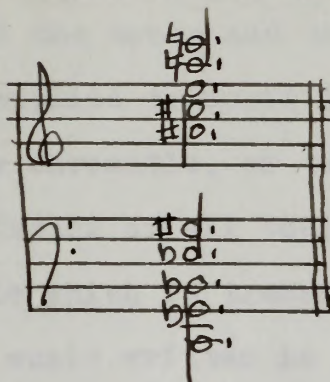


In the song Rast auf der Flucht, from the same group, is a passage similar to the one from the Vom Tode Mariä, in which there was a constantly changing tonality. Here the voices move in major thirds, and here again, there might almost be said to be atonality.



In the last song of this group, in its last chord, is a group of notes which fall into the categories both of polytonality and of added notes. Four separate groups of notes, implying four different keys, are present, and any three could be considered as added tones to the fourth. However,

this is a clear example of polytonality. It is from Vor der Passion.



Atonality and the Twelve-Tone Scale

Atonality has been defined both as the "absence of the relationship of all the tones and chords to a central keynote",¹ and as "a term applied to music in a state of constant modulation over the chromatic, or twelve-tone scale, this scale representing a fusion of all tonalities."²

This is a style which is tremendously difficult to achieve, and much of the music written in this vein has resulted in polytonality rather than atonality. The generally accepted view is that atonality is the result and product of Arnold Schönberg's works and study in the field of theory, and of his desire to express himself in his "mechanistic, intellectualized, non-Romantic style". However, his theories are a product of previous methods of composition, not a negation of them.

Schönberg considers, not that there is no key center or tonality to his music, but that there are rather twelve independent key centers, establishing thus new relationships of tones and chords, and removing what he thought to be a limiting process. In attempting to substitute a new and basic foundation for the establishment of his new system of composition, he created the atonal style, a new color in melody, in harmony, structure and rhythm.

The fundamental principles of Schönberg's style are being and have been carried on by some of his pupils, and they have had an enormous influence on modern composers. Some of these pupils are Alban Berg, Anton Webern, Egon Wellesz, and Ernst

1 International Cyclopedia
Thompson Ed.

2 Macmillan Encyclopedia
Wier Ed.

Krenek, who has adopted the technique and suited it to his own purposes, in a little different way from the others. However, only the works of Schönberg will be considered here.

Schönberg's use of the twelve-tone scale in his atonal compositions may be first explained by defining the difference between the twelve-tone scale and the chromatic scale. While they contain the same tones, the chromatic scale has seven tones of primary importance and the other five of secondary importance. On the other hand, in the twelve-tone scale all notes are of equal importance. The whole-tone scale of Debussy and the "mystic chord" of Scriabine are forerunners of this scale. Two whole-tone scales combined, one starting on C and the other on C^{*}, form a twelve-tone scale, and the so-called "mystic chord", with one chromatic alteration, the changing of A to A[♭], if placed in step-wise progression becomes a whole-tone scale.

In his next period Schönberg diverted his attention somewhat from pure atonality to his new system of musical expression, in which a melodic line is built, each of the twelve notes appearing once. He worked out combinations of these tones, called "Reihen", or "series." These combinations could be varied by inversion, elongation, contraction, retaining the rhythmic pattern and changing the intervals and vice versa, by the interpolation of notes, the elision of notes, and by the device of repeating the motive backwards. These combinations are arbitrary and completely mechanical in their construction, but are the goal at which Schönberg aimed in

the establishment of his new musical style.

Adolph Weiss, a student of Schönberg, says¹ of the system, "Its possibilities are unlimited, first because the choice of the series(which takes the place of the key, scale, or tonality) is arbitrary; second, because chordal construction is not restricted to building up by thirds, fourths, fifths, etc.; and, third, because the greatest 'freedom' in coördination is left to the taste and discretion of the composer."¹

Although there is little doubt that Schönberg is a great man, it is thought by some that his greatness lies in his "inquiring mind", rather than in the music which has resulted. The main reason for this belief is the fact that there is so much of his music which cannot be understood and appreciated by the average musical ear. There is a world of meaning in Schönberg's music, of which there is no clue to the average listener. It seems to be little more than "paper music", with unintelligible intricacies and dissonances, on a purely intellectual basis. For this reason there often seems to be no meaning - merely a huge mathematical construction, too complicated to be understood.

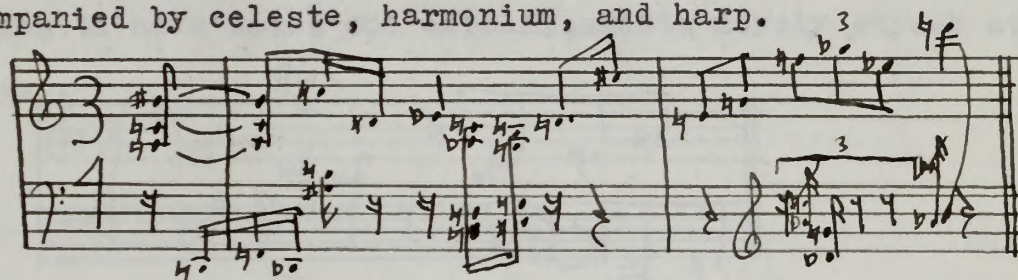
The composer, even in his explanations of his music, never really clarifies the situation, saying that the "reality or meaning of music has nothing to do with its sentiments, its expression, its sonority, its performance or atmosphere: the one thing that matters is the proportion between the sounds - something one feels rather than understands."²

¹ International Cyclopedia

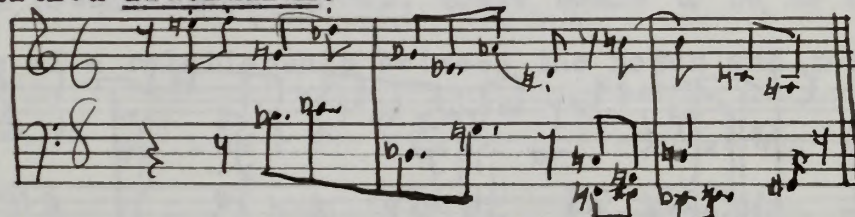
² McKinney & Anderson
- Music in History

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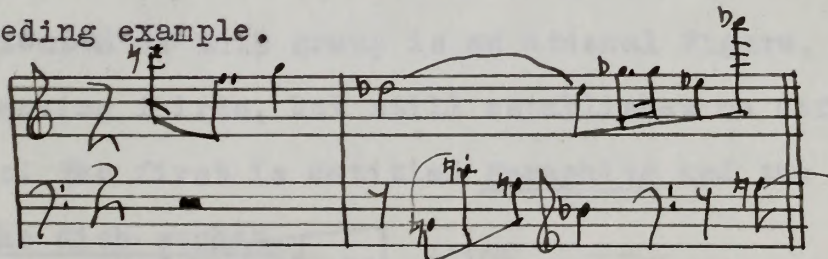
Although in his earliest works, Schönberg employed a romantic style of writing, he gradually developed, as his new theories progressed, a more and more atonal style of music. One example of a lack of any definite key scheme is found in the song entitled Herzgewächse, based on a text by Maurice Maeterlinck, and written originally for soprano, accompanied by celeste, harmonium, and harp.



Two more examples, in which there seem to be merely separately moving voice parts, with no relationship to each other, are found in the Suite für Klavier. The first is in the movement entitled Praeludium.

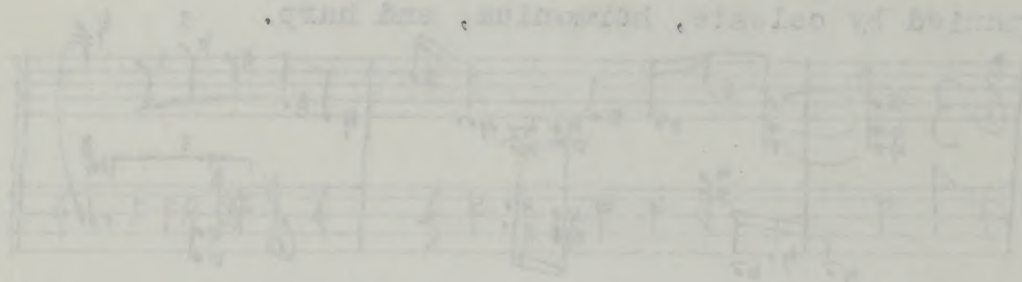


The second example taken from the Suite für Klavier is from the Gavotte, and is constructed in a manner much similar to the preceeding example.

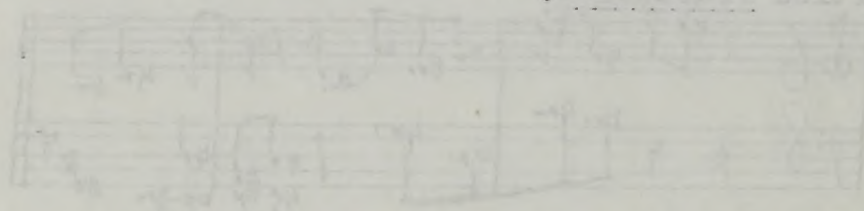


From the piano work entitled Fünf Klavierstücke the two most striking examples of atonality are found in those num-

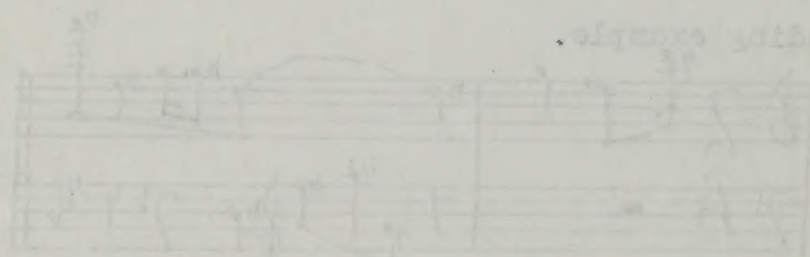
Although in his earliest work, Schubert employed a romantic style of writing, he gradually developed, as his own theories progressed, a more and more classical style of music. One example of a lack of any definite key system is found in the song entitled *Wanderer*, based on a text by Heinrich Heine, and written originally for voice, accompanied by celeste, harp, and piano.



Two more examples, in which there seems to be merely vaguely moving voice parts, with no relationship to each other, are found in the *Suite for Piano*. The first is in the movement entitled *Andante*.

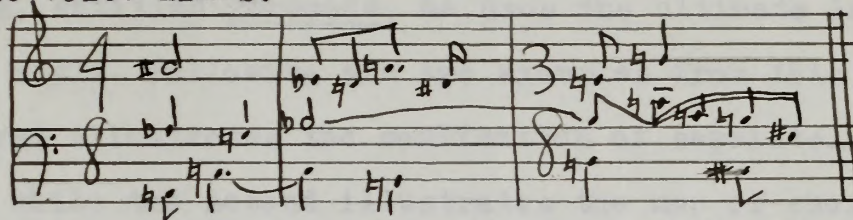


The second example taken from the *Suite for Piano* is from the *Andante*, and is constructed in a manner even simpler to the preceding example.

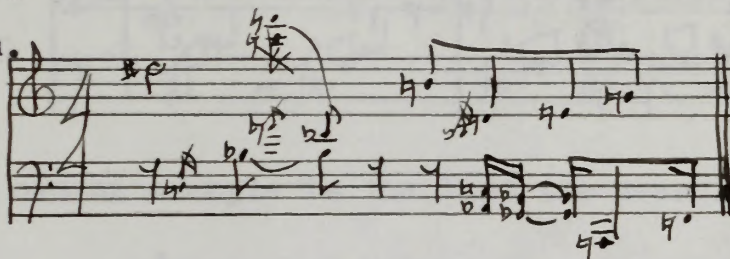


From the piano work entitled *Wanderer* the two most striking examples of atonality are found in these two-

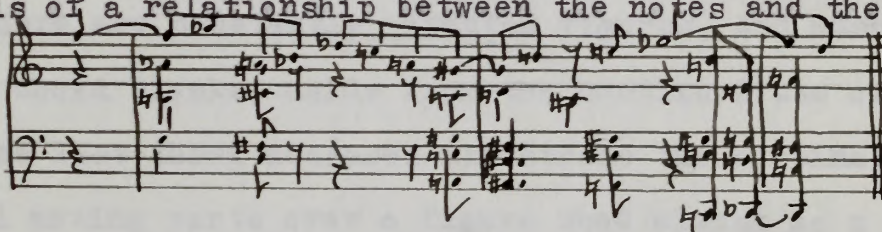
bers one and four. In number one is the combination of three separate voice lines.



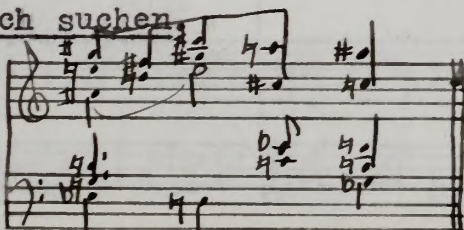
In number four is a passage even more difficult to analyze, seeming to have notes and embellishments merely struck at random.



In the Vier Lieder Für Gesang und Orchester are found examples of purely atonal writing. In the first of the four is a passage which contains a combination of a moving voice part and intermittent chords. There seems to be no logical analysis of a relationship between the notes and the chords.

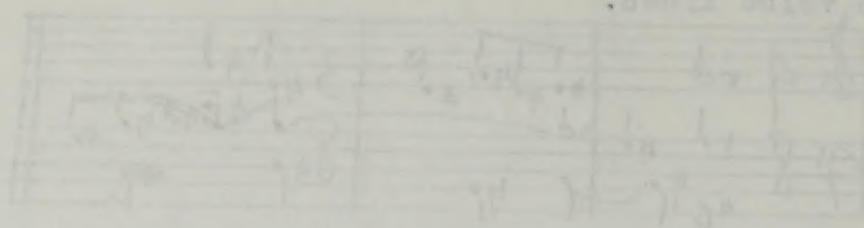


In the **second** of this group is an atonal figure, which contains moving thirds, but still establishes no definite tonalities. The first is entitled Seraphite and the **second**, Alle Welche dich suchen.



both one and two. In number one is the combination of three

separate voice lines.



In number two is a passage even more difficult to analyze,

because it has notes and accidentals which are not at



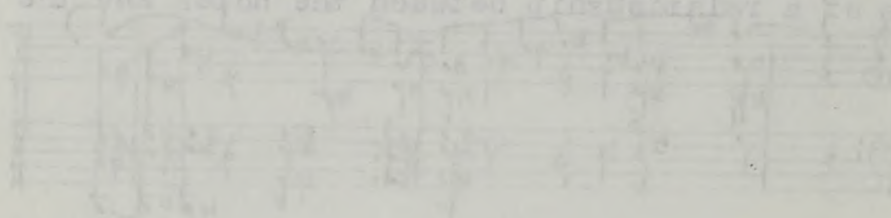
In the first of the three, the accidentals are found

examples of purely chromatic writing. In the first of the two

is a passage which contains a combination of a moving voice

part and intervallic chords. There seems to be an logical

analysis of a relationship between the notes and the chords.

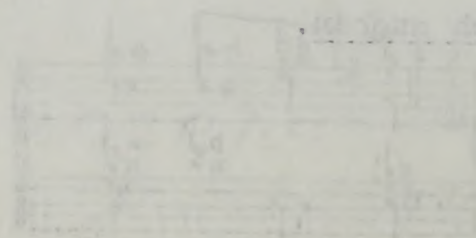


In the second of this group is an unusual figure, which

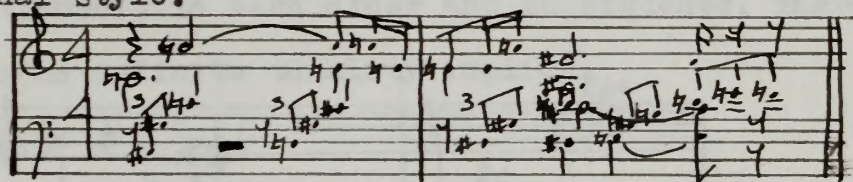
contains moving thirds, but still contains no definite

relationships. The first is entitled Formal and the second,

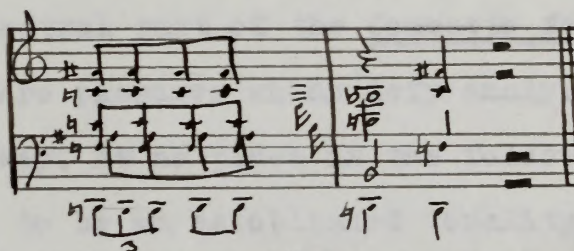
Two voices and so on.



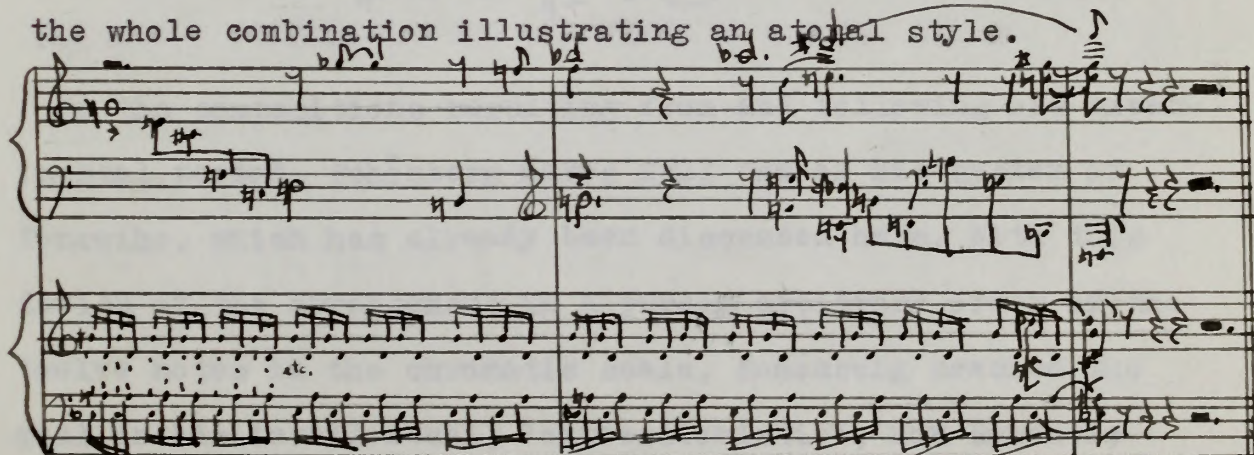
In Schönberg's work for an ensemble of wood-winds and strings, entitled Serenade, he uses the ultimate in his atonal style. Following are two examples from this work. The first illustrates the combination of separately moving parts, while the second illustrates the use of chords in the atonal style.



The second example is the last two measures of the Serenade.



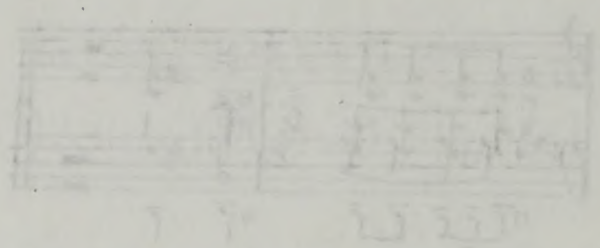
In the work titled Die glückliche Hand, a "Drama mit Musik", there are constantly repeated figures, and much use of moving chord blocks, aside from the continued use of atonality. The last three measures illustrate the combination of several moving parts over a figure used almost as a pedal, the whole combination illustrating an atonal style.



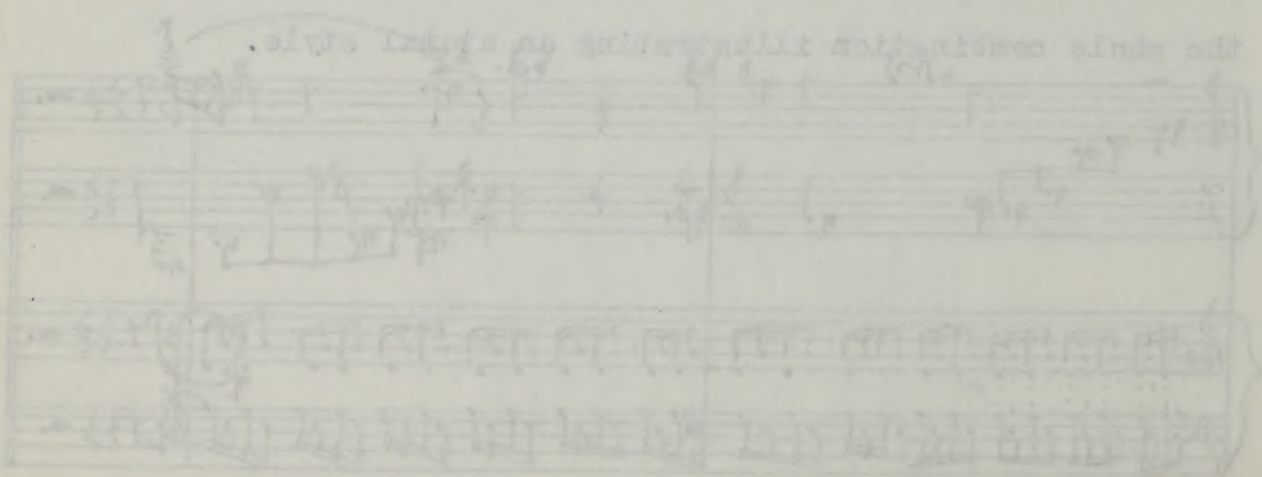
In Schopenhauer's work for an ensemble of wood-winds and strings, entitled *Requiem*, he uses the *ritardando* in his original style. Following are two examples from this work. The first illustrates the combination of separately moving parts, while the second illustrates the use of chords in the original style.



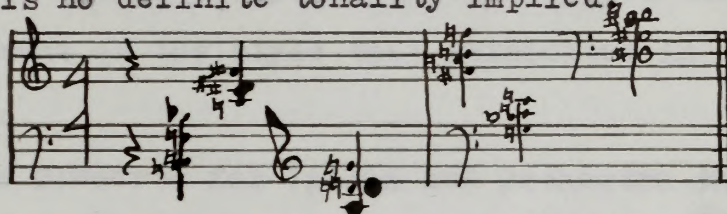
The second example is the last two measures of the *Requiem*.



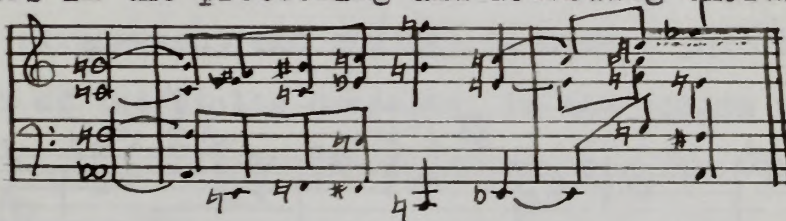
In the work titled *The Silencing of the March*, a *ritardando* and *tristesse* are constantly repeated figures, and such use of moving chord blocks, adds to the combined use of several parts. The last three measures illustrate the combination of several moving parts over a figure used almost as a pedal.



Atonality in a little different style is found in the work for piano, thus called Klavierstück, Opus 33a, of Schönberg. Here the lack of tonality is expressed, not in moving voice parts, but in a series of chords, each one of which might be analyzed in a different way, and which have very little if any relationship to each other and in sequence. There certainly is no definite tonality implied.

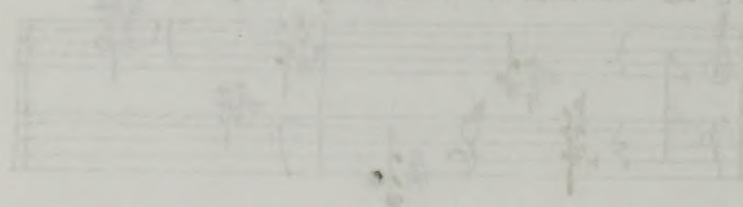


In the orchestral part of the Concerto for Violin and Orchestra, there are passages which defy analysis as relating to any definite key. At no place in the following example may there be said to be an established tonality. The notes of the chords seem to be totally unrelated to one another, and to the notes in the preceeding and following chords.



In the compositions resulting from and following his experimental period, Schönberg makes full use of his system of Tonreihe, which has already been discussed here. With this device of the arrangement in a purely arbitrary order of the twelve notes in the chromatic scale, Schönberg reached the goal in his intellectual, "expressionistic", non-Romantic

A somewhat in a little different style is found in the work
 for piano, then called *Harmonies*, Opus 22, of Schumann.
 Here the kind of tonality is expressed, but in moving voices
 parts, but in a series of chords, each one of which might be
 analysed in a different way, and which have very little if
 any relationship to each other and in sequence. There is
 really no definite tonality implied.



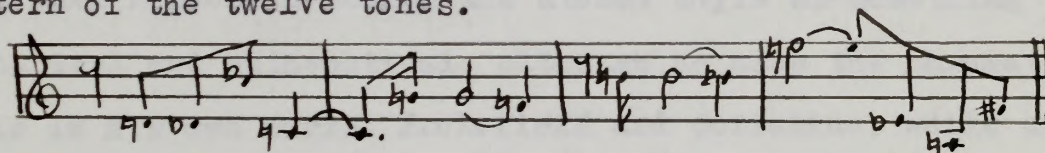
In the orchestral part of the *Symphony for Piano and Orchestra*,
 there are passages which may be analysed as relating to
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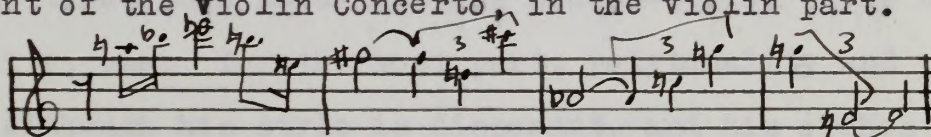
In the composition mentioned above and following the example
 of the *Symphony*, Schumann again took use of his system of
 tonality, which has already been discussed above. With this
 device of the arrangement in a purely arbitrary order of the
 twelve notes in the chromatic scale, Schumann reached the
 goal in his *Harmonies*, "symphonically", non-tonally.

music. There are several compositions based on this device, the four orchestral pieces, Opus 22, the five piano pieces, Opus 23, and the Serenade, Opus 24, and other instances of the use of one twelve-tone figure. There are passages in many of Schönberg's works which contain traces of this device - that is, a figure which does not contain all twelve notes, or contains repetitions. These are the beginnings and development of the style that culminated in the above-mentioned works.

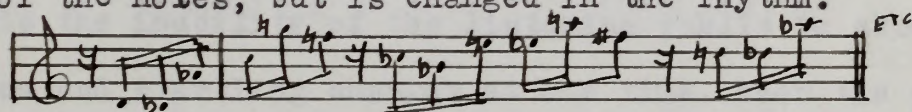
In the Concerto for Violin and Orchestra there are several different "reihe", or combinations of the twelve tones. Near the beginning, in the violin part, is found the following pattern of the twelve tones.



Another combination of the twelve tones, entirely different in both arrangement and rhythm, is also a part of the first movement of the Violin Concerto, in the violin part.

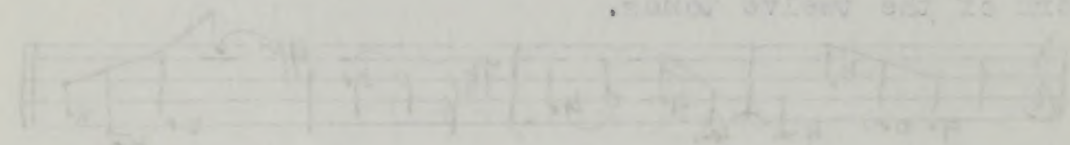


In the Finale of the same Violin Concerto is a still different figure, which is played once and then repeated in a higher octave. This figure resembles the first one in the order of the notes, but is changed in the rhythm.

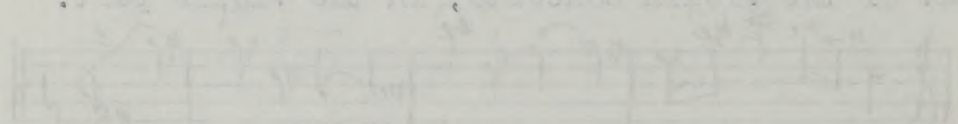


...there are several suggestions...
the four orchestral staves, Opus 22, the five piano pieces,
Opus 23, and the Sonatas, Opus 24, and other instruments of
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many of Schoenberg's works which contain traces of this twelve-
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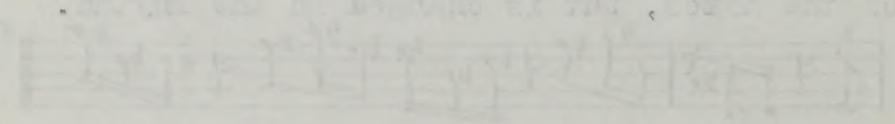
In the Concerto for Violin and Orchestra there are several
distinct "themes", an examination of the twelve-tone. Near
the beginning, in the violin part, is found the following
portion of the twelve tones.



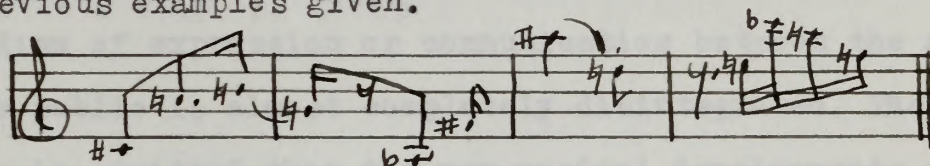
Another examination of the twelve tones, slightly different
in both arrangement and rhythm, is also a part of the first
movement of the Violin Concerto, in the violin part.



In the finale of the same Violin Concerto is a still different
series of notes, which is played once and then repeated in a
higher octave. This figure resembles the first one in the
order of the notes, but is changed in the rhythm.



In the fifth of Schönberg's Fünf Klavierstücke, entitled Walzer, there is found another arrangement of his twelve-tone series. This one contains large and awkward intervals, and is arranged in a very irregular rhythm, as compared with the previous examples given.

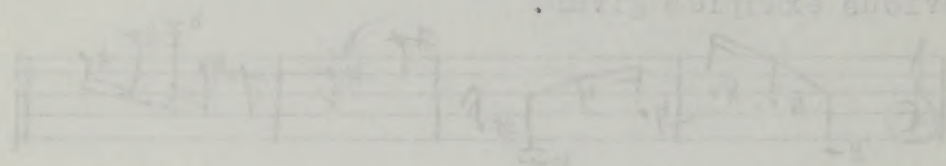


These examples represent, to a small degree, the works and aims of the composer Schönberg. Although there are and have been others who imitate or adapt his style, he is the outstanding exponent of this atonal style of composition.

In regard to the other composers taken up here, it may be said that Hindemith scorns the atonal style as something too mechanical and mathematical, although he uses the chromatic scale in his own works. Prokofieff and Scriabine, while using many of the other twentieth century harmonic devices, always maintain a definite tonality in their works. Stravinsky, although it has been said that his middle-period style contains atonality, uses, for the most part, polytonality and polyharmony. Although his style is dissonant, and his orchestration often barren and unpleasant to the ear, there is very little in his music that could possibly be analyzed as atonality.

Perhaps the greatest obstacle in the way of an atonal composer is the inability of the listening public to absorb so many new and startling changes at one time. When the old standards of key, harmony, rhythm, melody and form are all

In the first of Schöenberg's *Three Piano Pieces*, entitled *Three Pieces*, there is found another arrangement of his twelve-tone series. This one contains larger and smaller intervals, and is arranged in a very irregular rhythm, as compared with the previous examples given.



These examples represent, to a small degree, the variety and range of the composer Schöenberg. Although there are and have been others who have or almost his style, he is the outstanding exponent of this special style of composition.

In regard to the other composers taken up here, it may be said that Richard Strauss the actual style is something too technical and mathematical, although he uses the chromatic scale in his own works. Debussy and Ravel, while using many of the other twentieth century harmonic devices, always maintain a definite tendency to their own style. Stravinsky, although he has been said to be a middle-ground style, contains technicality, and, for the most part, rhythmicity and gallop-work. Although his style is abstract, and his orchestration often harsh and unpleasant to the ear, there is very little in his music that could possibly be regarded as atonal.

Perhaps the greatest obstacle in the way of an actual comparison is the inability of the listening public to accept so many new and startling changes as one time. When the old standards of key, harmony, rhythm, melody and form are all

abandoned at once, it is impossible for the average listener to either understand or enjoy the resulting composition. On the other hand, the composers themselves are unable to make use of all the methods and elements newly opened to them, and thus, in the face of all these inabilities, the old medium of expression or communication between the artist and his public is almost completely disintegrated. Therefore it must be admitted that the new musical developments mean almost nothing to the great percentage of the public who consider themselves to be music lovers. There is no appeal to the mind or to the emotions.

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Chord Building in Fourths

Here again, as in the subject of atonality, one of the greatest names is that of Arnold Schönberg. And in dealing with the device of chord building in fourths, the names of the other composers discussed here will also be included, especially that of Scriabine, with his "Mystic Chord."

The building of chords in fourths is by no means a twentieth century discovery, as the first use of this device was in the early days of Organum, with the first attempts at combining voices. Although this style was later given up for the use of more consonant intervals, the modern chord building in fourths is in reality a reversion to this early style.

The size and range of a chord built in fourths varies from one containing but two notes to one containing as many as eight or more notes. The composers of today use perhaps most of all the chord containing three notes, seeming to find it most suitable to their use and style. Many different resolutions and progressions of these chords may be found, and many different analyses of them may be made, but for these illustrations they will be merely pointed out and their settings somewhat described.

These chords have added much color and interest to modern music, and have been called "a valuable aid to present-day composition where a certain amount of vagueness is desirable." They create an indefiniteness as to tonality, unless combined with an established key, that is characteristic of the present-

Here again, as in the subject of architecture, one of the greatest names in that of vocal melody, and in dealing with the device of choral building in America, the reason of the other countries discussed here will also be indicated, especially that of vocal melody, with the "Vocal Chorus".

The building of choral in America is by no means a twentieth century discovery, as the first use of this device was in the early days of European, with the first attempts at combining voices, although this style was later given up for the use of more convenient intervals, the modern choral building in America is really a revelation to this early style.

The rise and fall of a choral built in America varies from one containing but two notes to one containing as many as eight or more notes. The composers of today are bent upon the use of all the chords containing three notes, seeking to find it most suitable to their use and style. Many different results have been the consequence of these chords may be found, and many different analyses of them may be made, but for those illustrations they will be merely pointed out and their results somewhat suggested.

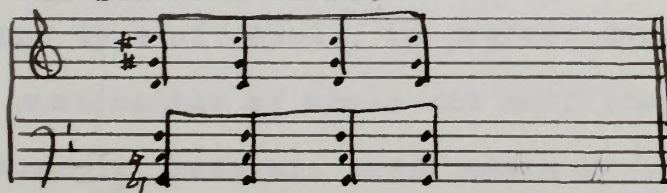
These chords have added much color and interest to modern music, and have been called "a valuable aid to present-day composition where a certain amount of richness is desirable". They create an indefinable sense of formality, which combined with an established key, that is characteristic of the present-

day idiom.

Schönberg believes that the system of constructing chords by thirds is inadequate, and that the process of building in fourths complements the old system. He says himself: "The method of building up chords in fourths is identical with that of fifths and possibly appeals as strongly to the musical ear; it is certainly capable of conducting uniformly all manner of chords with greater surety than by the system of thirds."¹ A combination of constructions, for example a chord containing both fourths and thirds, is found to be still more effective and interesting to the composition, and these combinations are also often used.

Although most of the combinations of this kind could be explained along the old lines as unresolved appoggiaturas, passing-notes, and elevenths and thirteenth^as, their increased^Λ and continued use has necessitated their classification in a group by themselves, and it is in this way that they are studied.

One example, this one from the works of Hindemith, is found in his Kammermusik No. 1. In this instance, the two chords which are struck simultaneously are built separately in fourths - in other words, there are here two three-note chords rather than one six-note chord.



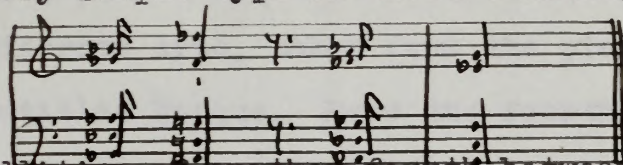
¹ New Harmonic Devices - Miller

day later.

Schubert believes that the system of contemporary chords by which is indicated, and that the process of building is further complicated by the system. He says himself: "The method of building up chords in this is identical with that of building up possibly as strongly to the same end; it is certainly capable of considerable variety all manner of chords with greater variety than by the system of thirds. A combination of octaves, for example, a chord consisting of thirds and fifths, is found to be still more effective and interesting to the composition, and these combinations are also often used. Although most of the combinations of this kind could be explained along the old lines as unexplained appoggiaturas, passing-notes, and eleventh and thirteenth, their interest and continued use has necessitated their classification in a group by themselves, and it is in this way that they are studied. For example, this one from the works of Schubert, is found in his *Impromptu* No. 1. In this instance, the two chords which are struck simultaneously are built separately in fourths - in other words, there are here two three-note chords rather than one six-note chord.

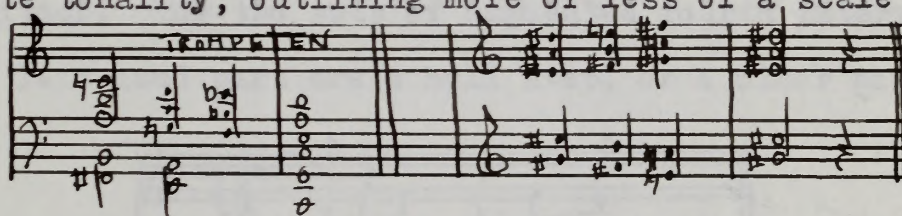


In Hindemith's Concerto for Cello and Orchestra is an example which has already been used to illustrate moving chord blocks. Here are chords consisting of two perfect fourths, constructed one upon the other, and moving by half-step. This is a very simple type of chord building in fourths.



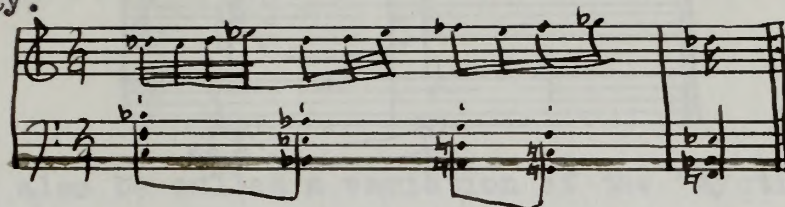
With the addition of another fourth between the upper and lower voices, these could be called five-note chords.

In the Lieder of Hindemith are several more examples of chord building in fourths. Two which also illustrate the device of moving chord blocks are found in the songs entitled Wie Sankt Franciscus and Trompeten. Here again are always perfect fourths, but this time moving in a combination of whole and half steps. When constructed in this way, the chords, in their progression, seem to indicate a more definite tonality, outlining more or less of a scale passage.

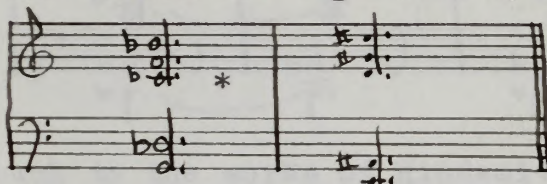


Still from the works of Hindemith, there is a similar example from the Sonata No. 3 for organ. This one again is made up of the same type of chords, in perfect fourths, and again moving in a combination of whole and half steps. In this particular example, however, there seems to be an indefinite

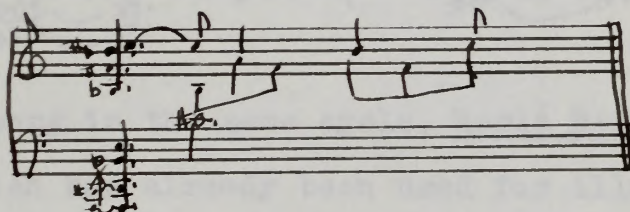
tonality.



Turning to another composer, there follows an example of a little different type, taken from the piano piece of Scriabine entitled Masque. Here the fourths consist of a perfect fourth above an augmented fourth, and the two chords in the series are separated by an augmented second.

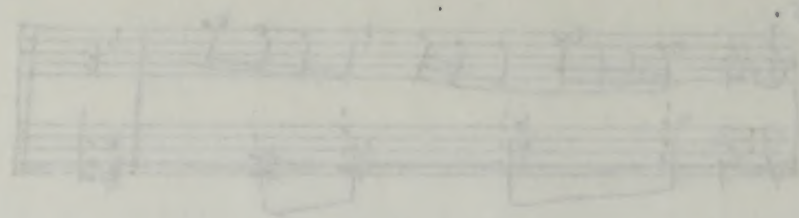


In the piano piece titled Poème-Nocturne, by the same composer, there is a chord which is repeated many times, and is often built on different bass notes, but has the same interval constructions. This appears often throughout the composition. The two sets of augmented fourth intervals in the left hand part are a half step, or a minor ninth, apart.

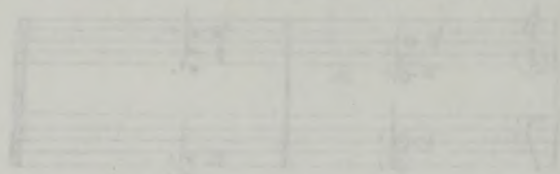


In the same piece is a similar construction, this time found in the upper voices, with the fourths, still augmented, an octave apart.

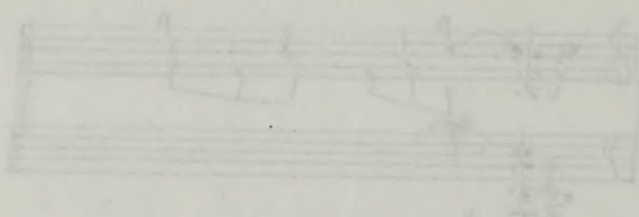
* With two enharmonic changes, C[#] and B, this may be called a variation of the "mystic chord", with an added B^b.



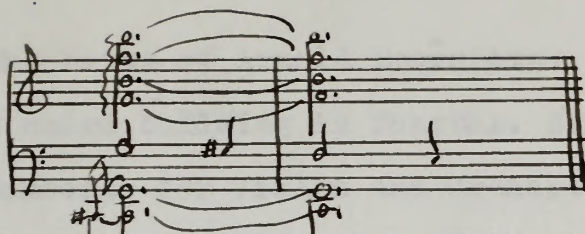
Turning to another subject, there follows an example of a little different type, taken from the piano piece of Johannes Sebastian Bach. Here the fourth consists of a perfect fourth above an augmented tenth, and the two chords in the series are separated by augmented second.



In the piano piece cited above, by the same composer, there is a chord which is repeated many times, and in other parts on different bass notes, but has the same interval construction. This appears often throughout the composition. The two sets of augmented fourth intervals in the left hand part are a half step, or a minor ninth, apart.

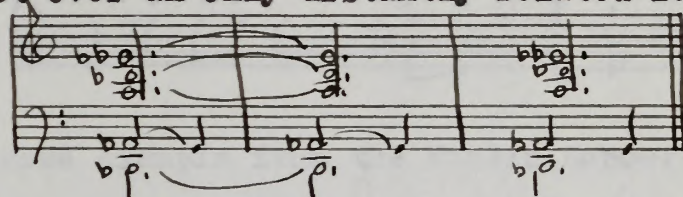


In the same piece is a similar construction, this time found in the upper voices, with the fourth, still augmented, and octave apart. With two chromatic changes, G[♯] and A, this may be called a variation of the "augmented chord", with an added A.

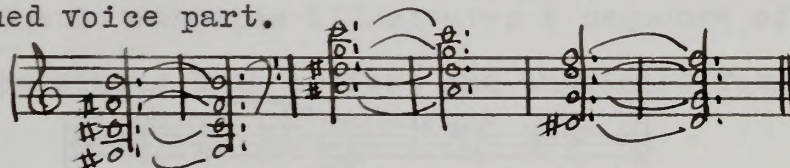


This may also be called a variation of the "mystic chord."

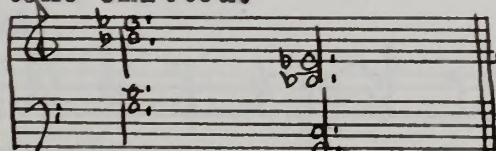
Also in the same composition, there is an example of a chord made up of a perfect and a diminished fourth, which, viewed enharmonically, becomes a triad in second inversion. This chord is set over an only distantly related left hand part.



Turning back to the works of Hindemith, the Marienleben, there are at least two different examples to be found in the songs of the cycle. In the song titled Geburt Mariä is a passage where a four-note chord built in perfect fourths acts as a sort of pedal point for moving upper parts, and a sustained voice part.

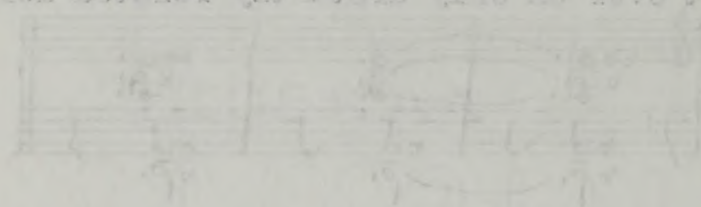


In another song in the same cycle, Mariä Heimsuchung, is an example which has already been used for illustrating polytonality. Here is outlined a five-note chord built in fourths, with the middle tone omitted.





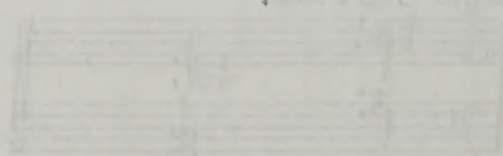
This may also be called a variation of the "soprano" chord.
 Also in the same connection, there is an example of a chord
 made up of a perfect and a diminished triad, which, viewed
 experimentally, becomes a triad in second inversion. This
 chord is set over an only distantly related left hand part.



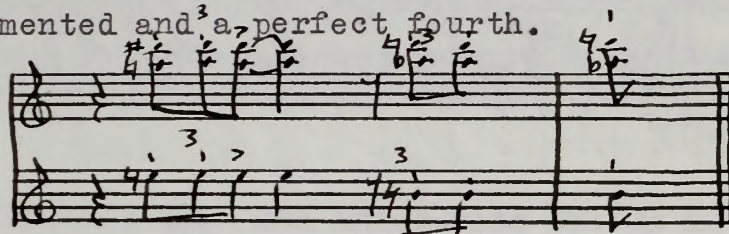
Turning back to the works of Hindemith, the *Wunderkammer*,
 there are at least two different examples to be found in the
 course of the cycle. In the song titled *Geistliche* is a
 passage where a four-note chord built in perfect fourths
 acts as a sort of pivot point for moving upper parts, and
 a sustained voice part.



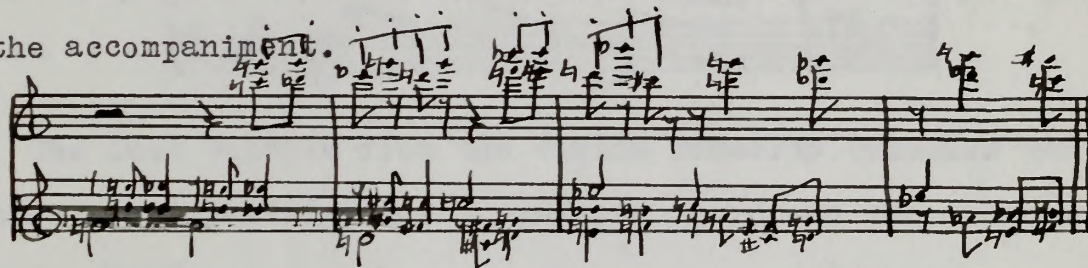
In another song in the same cycle, *Wunderkammer*, is
 an example which has already been used for illustrating poly-
 metricity. Here is outlined a five-note chord built in fourths,
 with the whole tone triad.



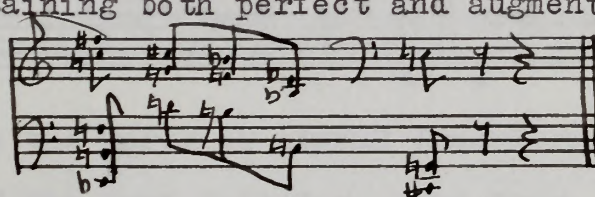
Turning to the works of Arnold Schönberg, we find many different types of chord building in fourths. Several are to be found in the Concerto for Violin and Orchestra. In the first, there is a three-note chord, followed by a four-note chord, the latter having one tone omitted. In both chords there is both an augmented and³a perfect fourth.



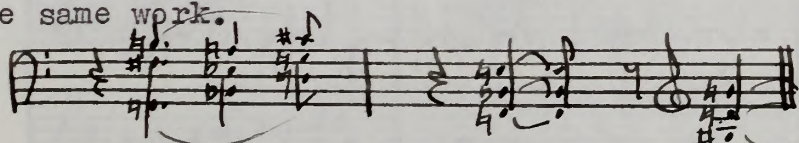
In the second example from the Violin Concerto are two separate sets of two-note chords. These examples are found in the accompaniment.



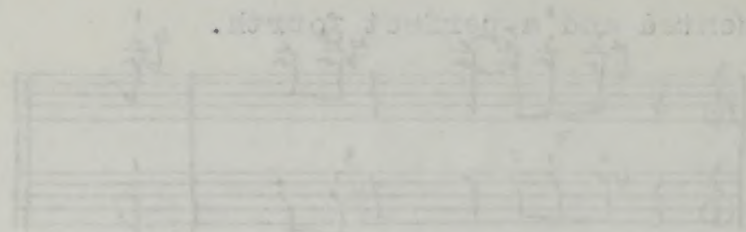
The next short example illustrates a sequence of two-note chords, containing both perfect and augmented fourths.



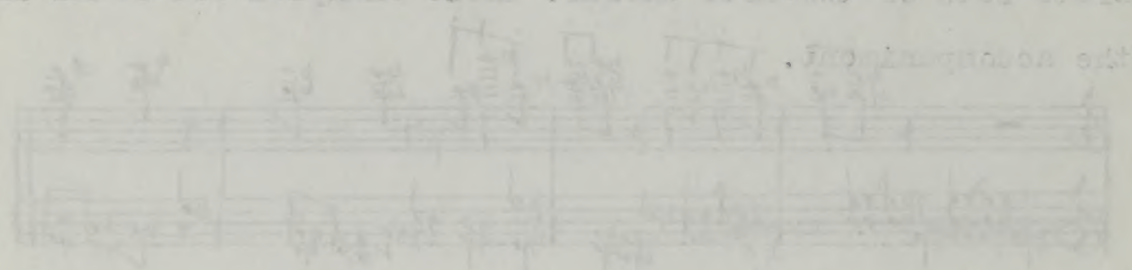
Following is an example containing a series of three notes chords, built on a perfect fourth and an augmented fourth, from the same work.



returning to the series of similar cadences, we find some other
 great types of chord building in existence. Several may be
 found in the Concerto for Violin and Orchestra. In the first,
 there is a three-note chord, followed by a four-note chord,
 the latter having one tone omitted. In both chords there is
 both an ascending and a descending fourth.



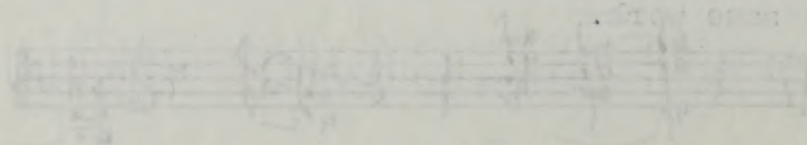
In the second example from the Violin Concerto are two
 great sets of two-note chords. These examples are found in



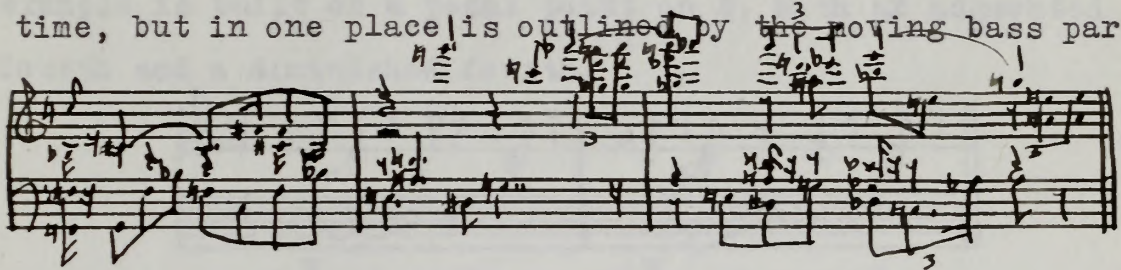
The next short example illustrates a sequence of two-note
 chords, containing both perfect and augmented fourths.



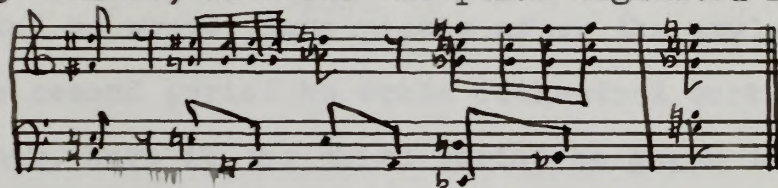
Following is an example containing a series of three-note
 chords, built on a perfect fourth and an augmented fourth.



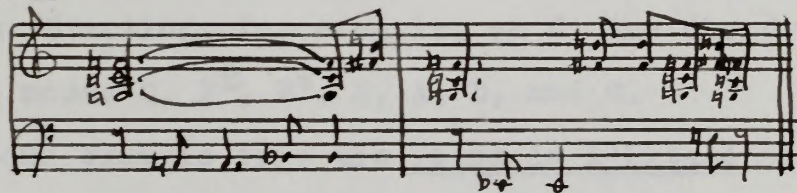
The next example from the same work illustrates how the combination of several moving voice parts can form chords built in fourths. Here the chords are not only struck at the same time, but in one place is outlined by the moving bass part.



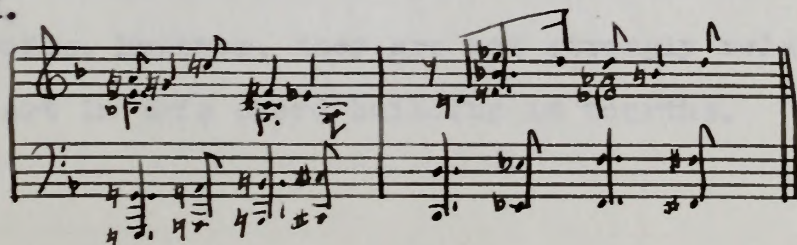
A combination of two- and three-note chords is found in the following measure, with one exception augmented fourths.



The last example from the Violin Concerto contains two chords alternately, one a two-note chord and the other a three-note chord.



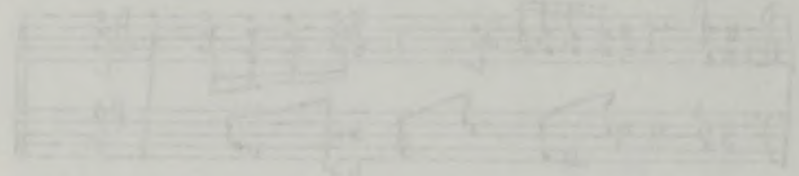
Still from the works of Arnold Schönberg, this time from the first of the Zwei Balladen, Jane Grey, follows an illustration of chord building with perfect and augmented fourths combined.



The next example from the same work illustrates how the combination of several moving voice parts can form chords both in texture, here the chords are not only spread at the same time, but in one place is applied to the whole part.



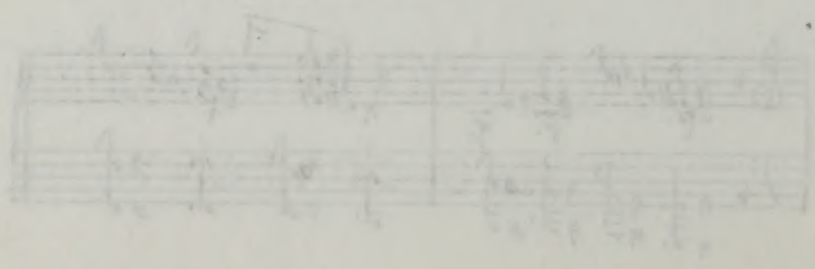
A combination of two and three-part chords is found in the following example, with one exception suggested in time.



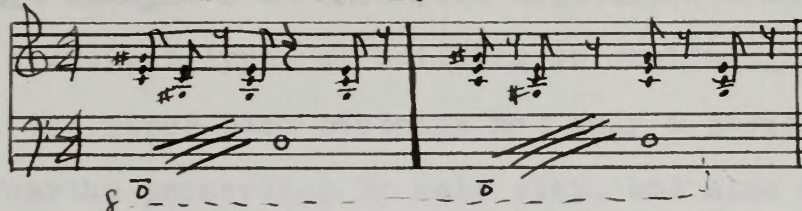
The last example from the Violin Concerto contains two chords alternately, one a two-note chord and the other a three-note chord.



Still from the works of Arnold Schoenberg, this time from the first of the Four Violins, one may follow an illustration of chords building with perfect and augmented triads combined.

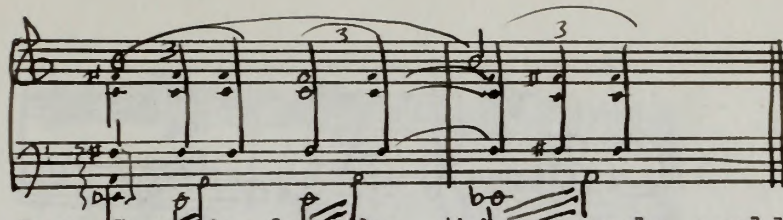


Turning to the works of Scriabine, in the Poeme de l'Extase are several examples of chord building in fourths. Here they are often not obvious, but are closely concealed. The first example is built on a pedal point on D, with an augmented fourth and a diminished fourth.



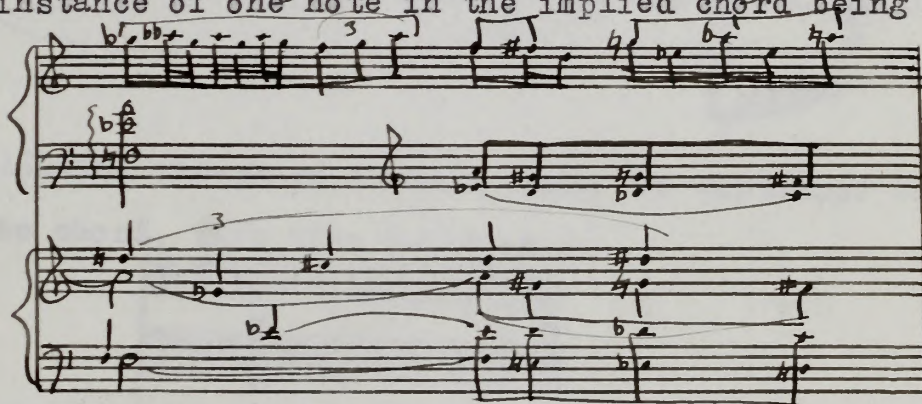
This work is thought to be the dividing line between Scriabine's second and third periods of composition. While in his first period he wrote piano pieces after the style of Chopin, and in his second period he wrote orchestral works modeled after Wagner, here in the third period he began to compose his original works, experimenting with new chord formations, the most well-known of which is his famous "Mystic Chord." This chord is supposed to be the basis of all the third period works. Starting, for example, on C, the chord would include the notes C, F \sharp , B \flat , E, A, D, and G.

The second example from the Poeme de l'Extase consists of two sets of fourths, both augmented, with a ~~perfect~~ fourth added to the upper one. There are other parts moving at the same time, this example being taken from the second piano part of the reduction for two pianos from the orchestral score by Léon Conus. However, they are not strongly related, and have no part in this chord building in fourths.

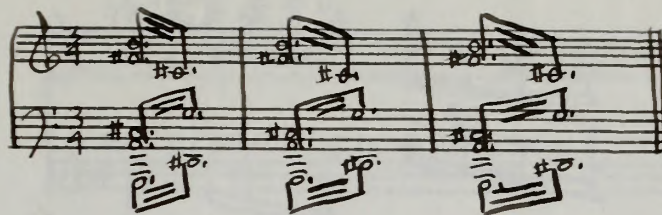


Arranged from C up in fourths, this example could be considered as illustrating a variation of the "mystic chord."

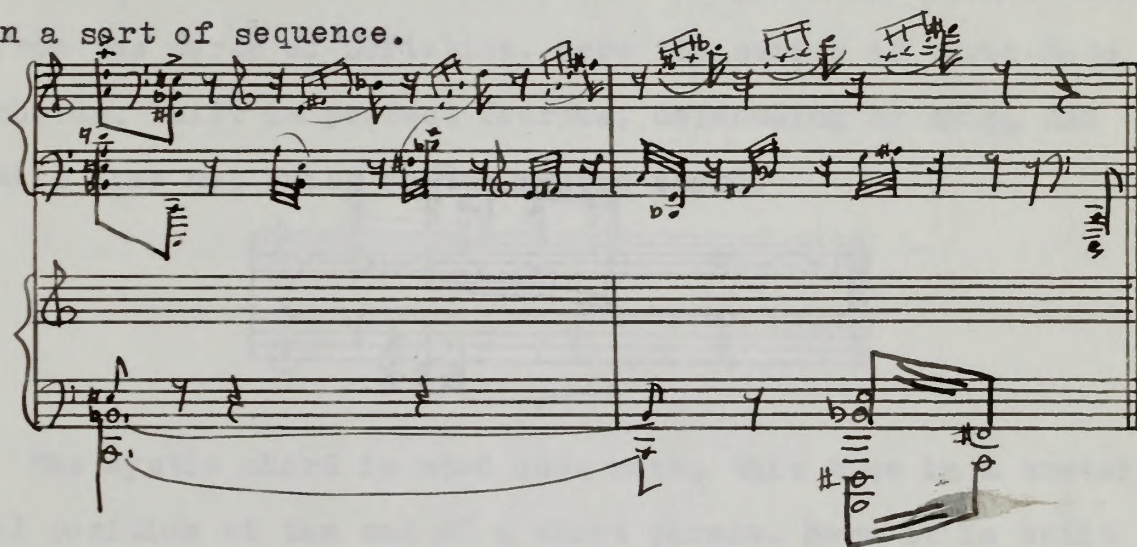
The last example from this work contains a combination of several different types of building or outlining chords in fourths. The upper part contains not only a series of augmented fourths proceeding by half step, but also a chord, like which there are many in this work, which implies a four-note chord, but from which one of the four notes is missing. In the lower voices, besides the series of augmented fourths found in the upper voices, there is an outlining of fourths in the moving parts throughout the measure. Here again there is an instance of one³ note in the implied chord being missing.



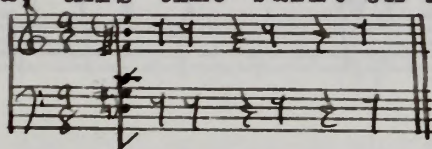
Turning to the work Prométhée, Le Poème du Feu, we find several more obvious examples of this type of chord building. The work opens with a long tremolo involving the notes of the mystic chord, this time built on A, and including D[#], G, C[#], F[#], and B.



The next example from this work is also built clearly on the same mystic chord. In the two measure phrase the notes of this chord are struck both in chord form and individually in a sort of sequence.



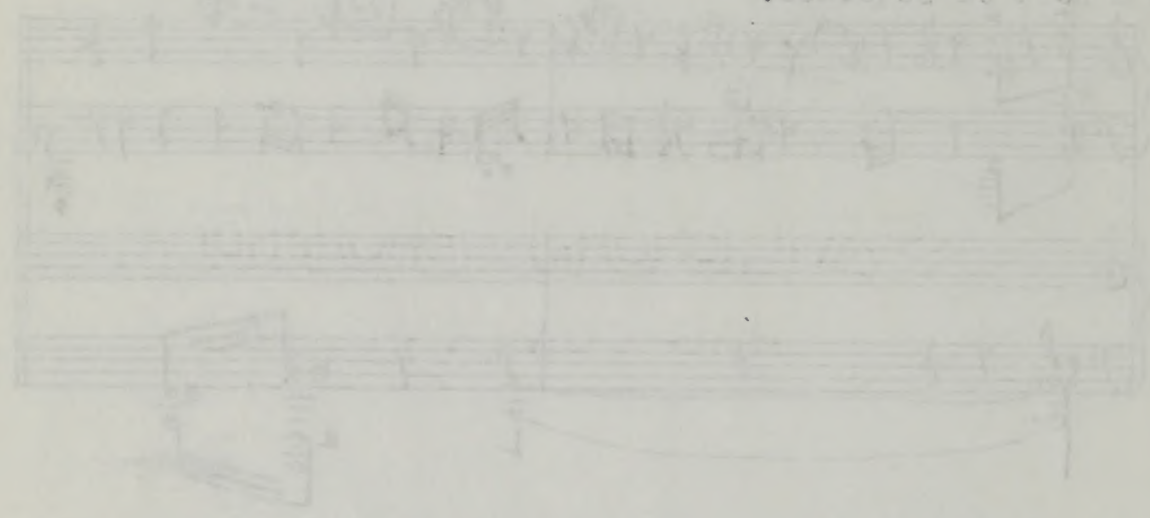
The following one-chord example shows the continued use of the mystic chord, this time built on D.



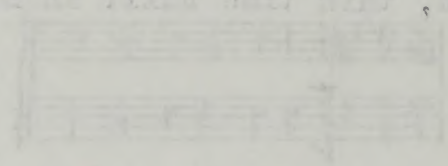
The next example shows a slightly different type of chord building in fourths. Here the chords are repeated and moved by a half step, and do not follow exactly the pattern of the mystic chord. The four chord figure is repeated several times in the few measures at this instance in the composition, against what could be called a pedal figure in the left hand part.



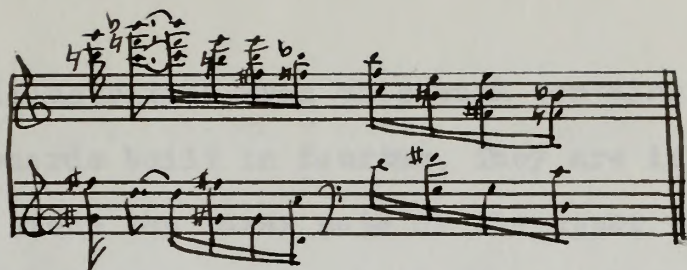
The next example from this work is also built clearly on the same rhythmic theme. In the two measures between the notes of this phrase are placed both in chord form and individually in a sort of sequence.



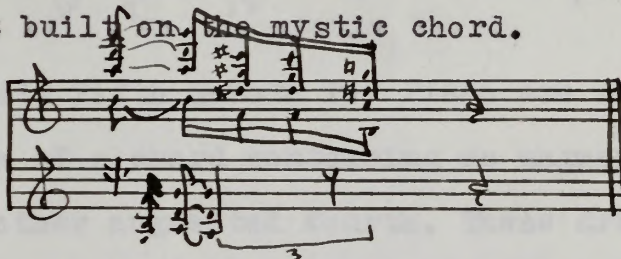
The following one-measure example shows the continued use of the rhythmic theme, this time built on D.



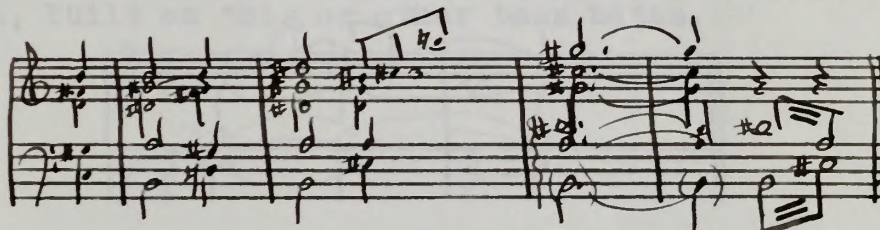
The next example shows a slightly different type of chord building in fourths. Here the chords are repeated and moved by a half step, and so not follow exactly the pattern of the rhythmic theme. The four chords shown are repeated several times in the two measures at this instance in the composition, and thus what could be called a pedal figure in the left hand.



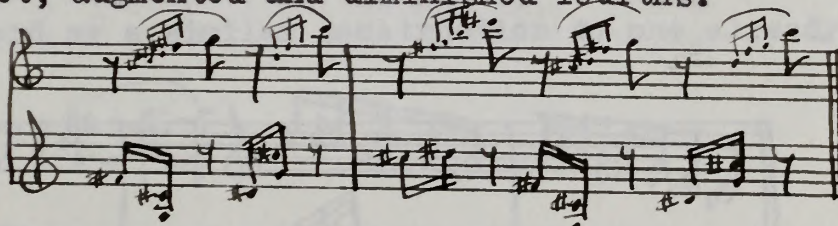
Still a different use or treatment of this device is that in the next example, which resembles the style of the other composers taken up here more than the previous illustrations from the works of Scriabine. Here is a series of three-note chords, built in perfect fourths, descending by skip, and this time not built on the mystic chord.

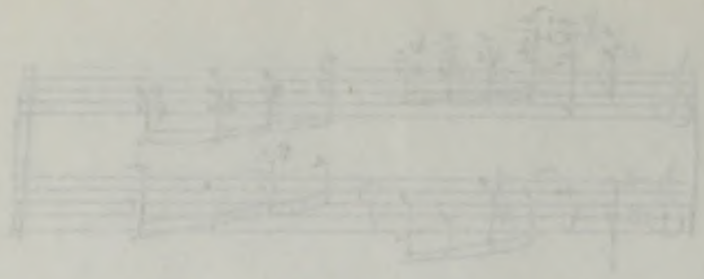


The mystic chord is used once more, this time in a sustained position at the end of a short phrase. Here it is built on B.

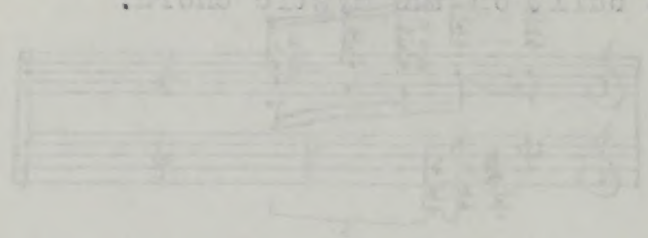


A figure which is often repeated throughout this Prométhée is the one following, which outlines chords in fourths. Here are perfect, augmented and diminished fourths.

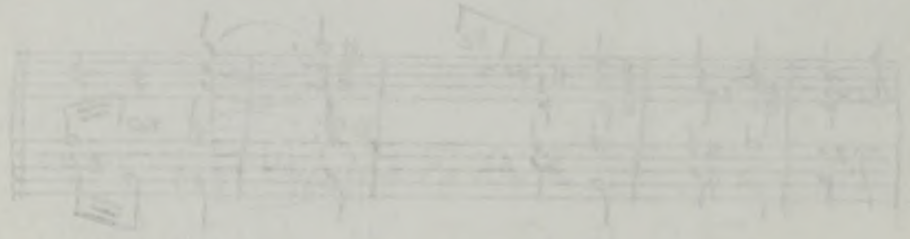




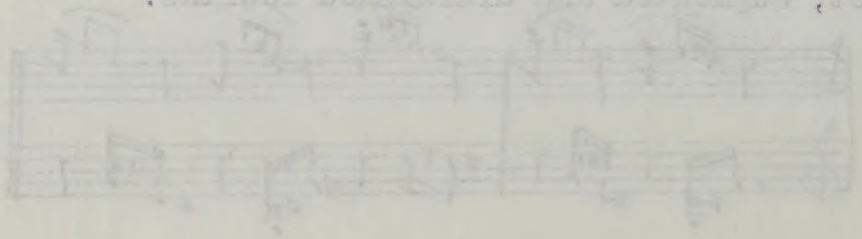
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in the next example, which resembles the style of the other
composers taken up here more than the previous illustrations
from the works of Scriabin. Here the series of three-note
chords, built in perfect fourths, descending by step, and
this time not built on a tonic chord.



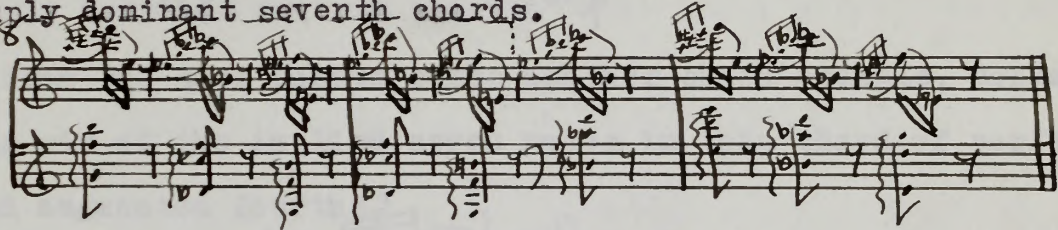
The cyclic chord is used once more, this time in a suc-
cessful position at the end of a short phrase. Here it is built



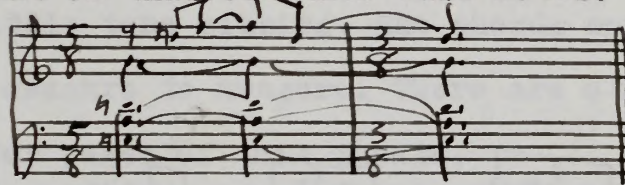
A figure which is often repeated throughout this work
is the one following, which contains chords in fourths. Here
are perfect, augmented and diminished fourths.



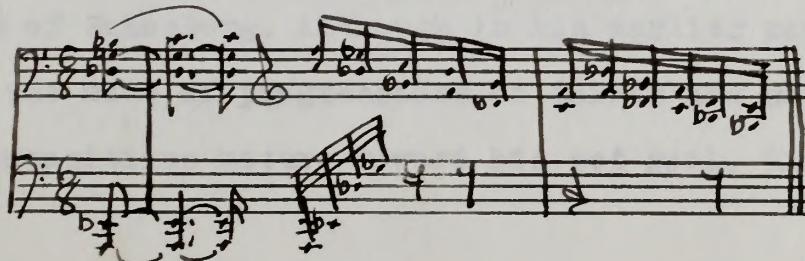
The last illustration from this work contains a series of incomplete chords built in fourths. They are implied five-note chords since the lower note of the upper voices adds another fourth to the left hand chord. The left hand notes of these chords, as they are here played, might be said to imply dominant seventh chords.



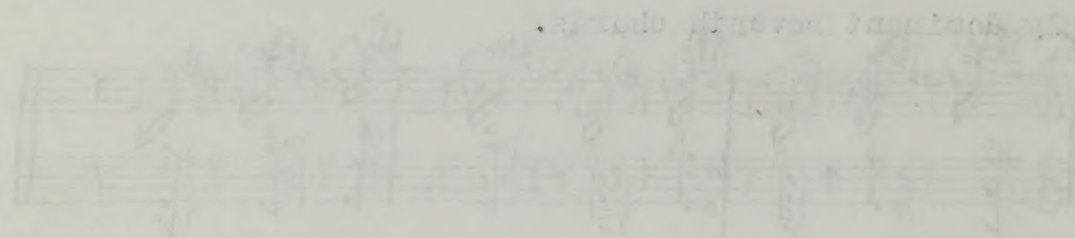
In Scriabine's Fifth Sonata for Piano are several instances of the use of a chord containing an augmented, a diminished, and another augmented fourth. These are the first four tones of the mystic chord, and the basis note this time is E. There are several similar constructions throughout the Sonata, built on this or other bass notes.



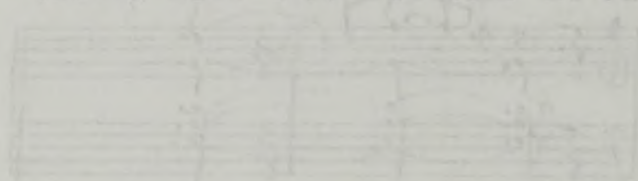
In the Sonata No. 8 for piano, by the same composer, is an instance of a progression of two-note fourths, which in this case outlines one tonality, rather than being a form of the mystic chord or a similar construction to one already mentioned.



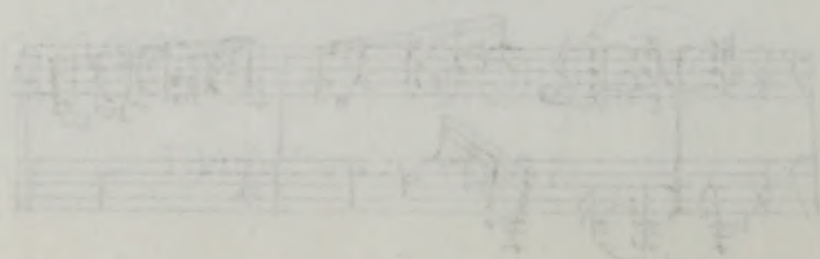
The last illustration has this work contains a number of
 complete chords built in fourths. They are marked five-
 note chords since the lowest note of the upper voices adds
 another fourth to the left hand chord. The left hand notes
 of these chords, as they are here played, might be said to
 form a constant seventh chord.



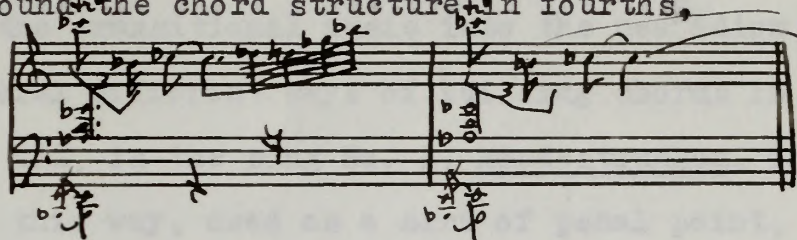
In the same way, the fifth chords for piano and several instanc-
 es of the use of a chord containing an augmented, a dimin-
 ished, and another augmented fourth. These are the three four-
 tones of the quartet chord, and the basis upon which the
 H. There are several similar constructions throughout the
 Sonata, built on this or other basic notes.



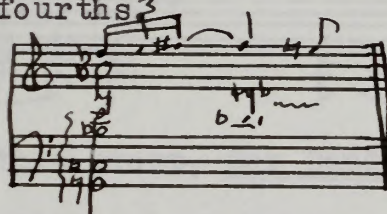
In the Sonata No. 3 for piano, by the same composer, is an
 instance of a progression of two-note fourths, which in this
 case defines one tonality, rather than being a form of the
 quartet chord or a similar progression to one already mention-



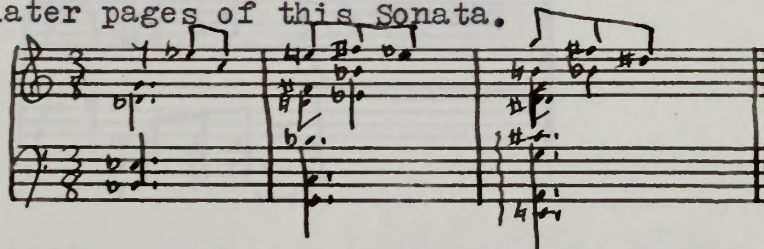
In the Sonata No. 9 from the same group of sonatas is an example where all the notes in the two measures included are built around the chord structure in fourths,



From the same Sonata comes another short example, containing six of the implied seven notes in this chord of perfect and augmented fourths³

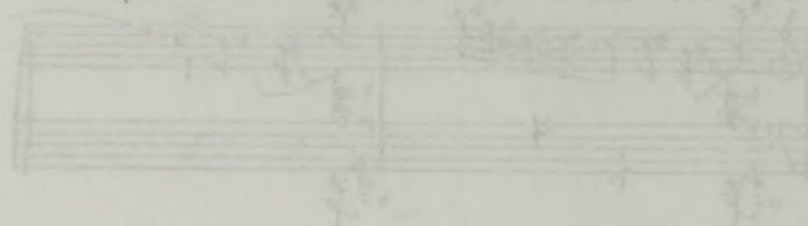


The last example from this group is from the Sonata No. 10, and contains, with a slight variation, three measures with equally constructed chords built in fourths, five-note chords with the middle tone missing. The chords move down a minor third from measure to measure. There are other similar passages in later pages of this Sonata.

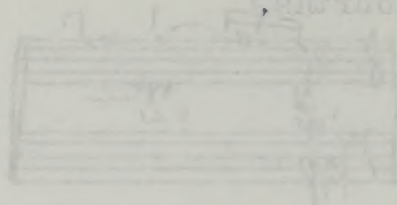


Leaving the works of Scriabine, we turn again to the compositions of Schönberg. Although in his earlier works there is great use made of progressions of thirds and sixths, yet as the compositions mature toward his set goal, there is more

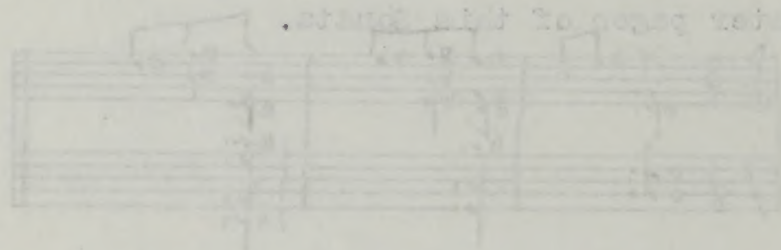
In the Sonata No. 9 from the same group of sonatas is an example where all the notes in the two measures included are built around the chord of the fourth.



From the same Sonata comes another short example, containing six of the implied seven notes in this chord of fourths and augmented fourths.

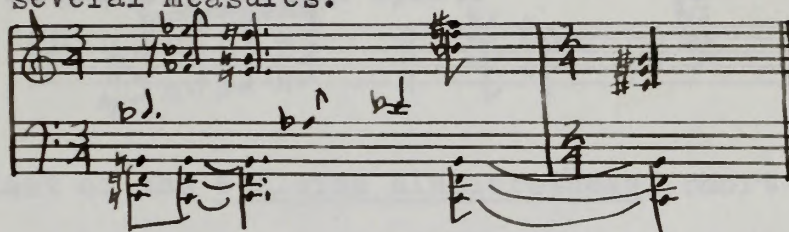


The last example from this group is from the Sonata No. 10, and contains, with a slight variation, three measures with equally connected chords built in fourths, five-note chords with the middle tone missing. The chords move down a minor third from measure to measure. There are other similar passages in later pages of the Sonata.

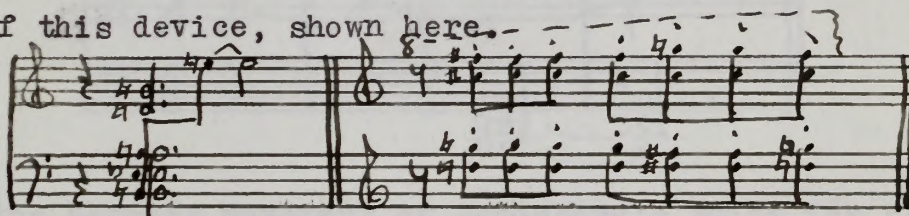


Leaving the work of Schöenberg, we turn again to the compositions of Schönberg. Although in his earlier works there is great use made of progressions of thirds and sixths, yet as the composition moves toward his last work, there is more

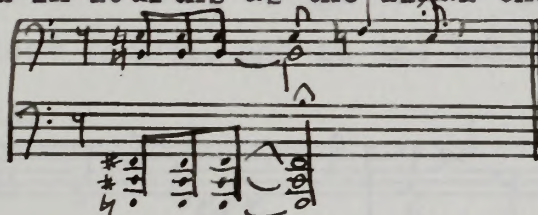
and more use made of chord building in fourths. In his set of twenty-one songs entitled Pierrot Lunaire, which was a part of the transitional music into the new idiom, Schönberg uses several different ways of building chords in fourths. First of all, in the song No. 1, Mondestrunken, is a chord built in this way, used as a sort of pedal point, continuing through several measures.



In No. 3 of this group, Der Dandy, there are at least two uses of this device, shown here.

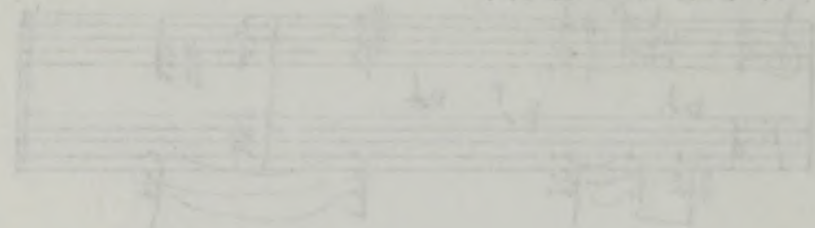


The last measure of No. 9, Gebet an Pierrot, shows the use of a chord in fourths as the final chord of a composition.

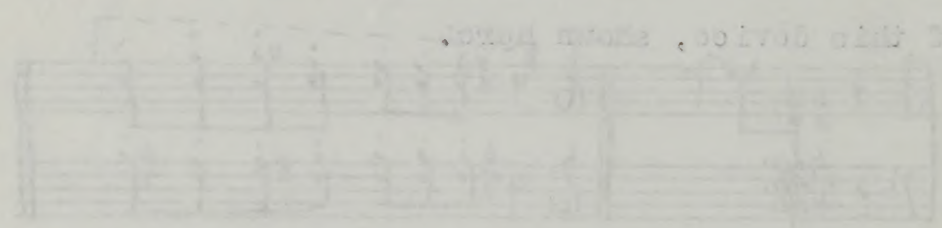


The last two examples from the Pierrot Lunaire are taken from Nos. 11 and 15, Rote Messe and Heimweh respectively. The second in particular resembles closely, omitting the lowest note, the mystic chord of Scriabine.

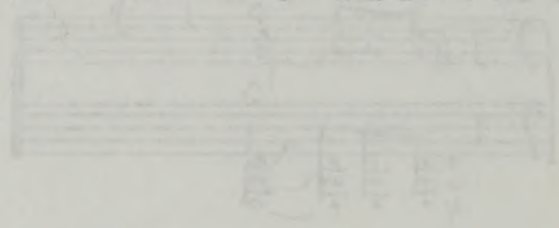
and were the side of church building in town. In the case
of many of the houses situated in the town, which was a
part of the original town into the new town, Schönbach
was several different ways of building, some in the town.
First of all, in the case No. 1, the building, in a church
built in this way, such as a sort of pediment, containing
through several windows.



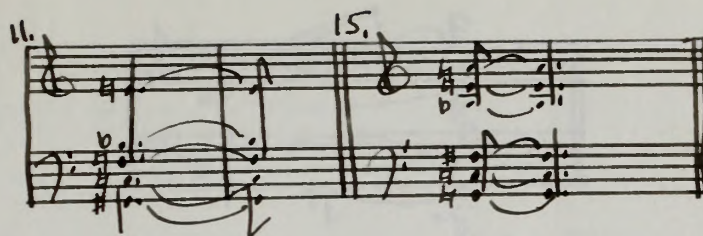
In No. 2 of this series, for example, there are at least two



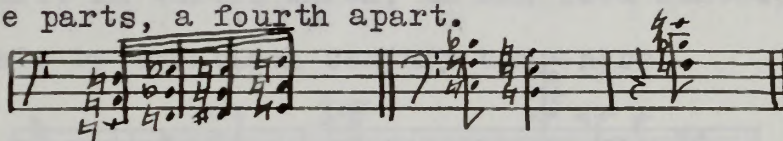
The last measure of No. 2, for example, shows the end
of a chord in the form of the final chord of a composition.



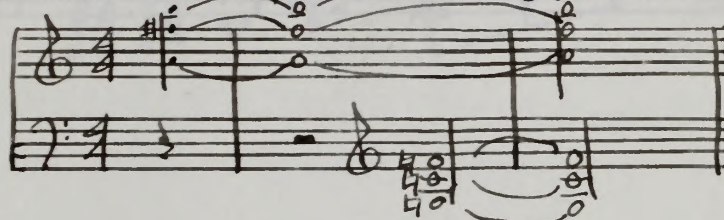
The last two measures from the series show the same
from No. 11 and 12, with some and some, respectively.
The second in particular is written clearly, and the last
one note, the final chord of the series.



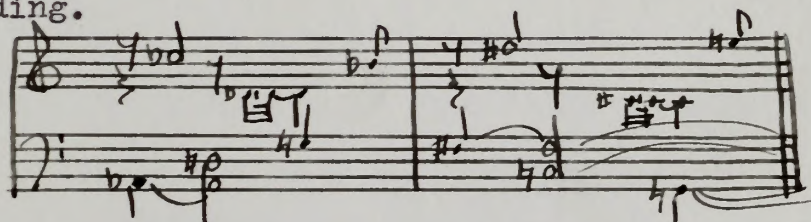
In the first of the Vier Lieder für Gesang und Orchester, Seraphita, are two passages written for trombones, containing three parts, a fourth apart.



The last of the 6 Kleine Klavierstücke, short one-page pieces, is built around the following structure of fourths.



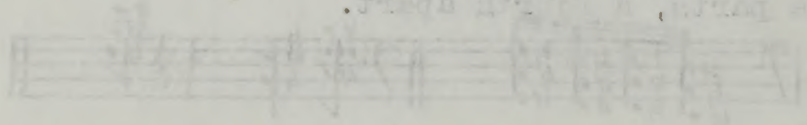
In the Menuett movement of Schönberg's Suite für Klavier is a two-measure passage which contains, in the left hand part, an ascending voice line of an augmented fourth followed by a perfect fourth, and in the next measure the same pattern descending.



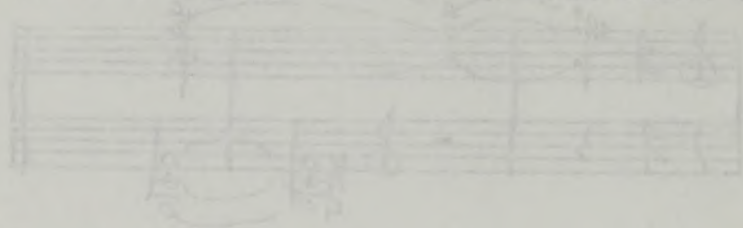
In the Klavierstück, Opus 33a, is a similar passage, in which the right hand ascends by fourths while the left hand descends by perfect fifths.



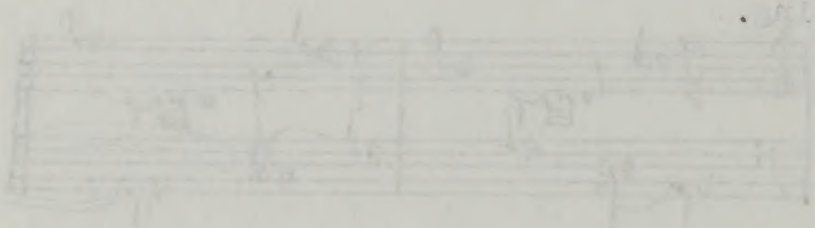
In the first of the Wien Lieder the Adagio and Allegretto,
Adagio, are two passages written for Allegretto, containing
 the same parts, a Allegretto apart.



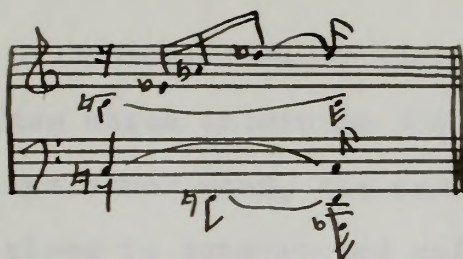
The first of the Wien Lieder is Allegretto, about one-page
 piece, is built around the following structure of Allegretto.



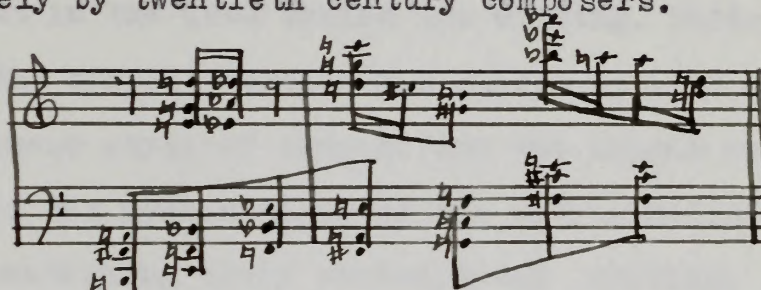
In the Wien Lieder movement of Allegretto is Allegretto
 is a two-measure passage which contains, in the left hand
 part, an ascending voice line of an Allegretto Allegretto
 by a perfect fourth, and in the next measure the same pattern
 descending.



In the Wien Lieder, Allegretto, is a similar passage, in
 which the right hand ascends by Allegretto while the left hand
 descends by perfect fifth.

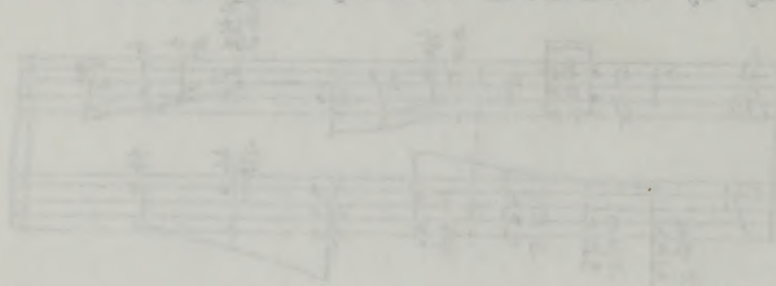


The last example of this device, also from the same Klavierstück, shows the combination of chords built in fourths with chords built in thirds which, as has been stated, is used so effectively by twentieth century composers.





The last example of this device, also from the same source, shows the resolution of chords built in fourths with chords built in thirds which, as has been stated, is used so effectively by twentieth century composers.



Linear Counterpoint

In the type of contrapuntal writing thus described, it is the melodic lines which determine the form and content of the piece. On the other hand, the melodies are not so important when the piece is constructed mainly on chords and their connections. Between these two extremes of linear and chordal writing are many varied and modified combinations of the two. The main difference is not in the external appearance of the music, but in the idea behind the writing. While in chordal writing the composer breaks his chords up into moving voices, in the linear style of composition the chords are merely the product of the combinations of the moving melodic lines. In a style containing truly contrapuntal writing, every tone of one chord moves to a tone of the next chord, while in such as a keyboard style it is more likely to be chords, in part or in whole, which are moved.

However freely the voices may be made to move, nevertheless, to make the music intelligible and at all enjoyable to the listener, there must be some thought given to the harmonic aspect of the composition. Thus all the melodic steps and constructions are of greatest importance.

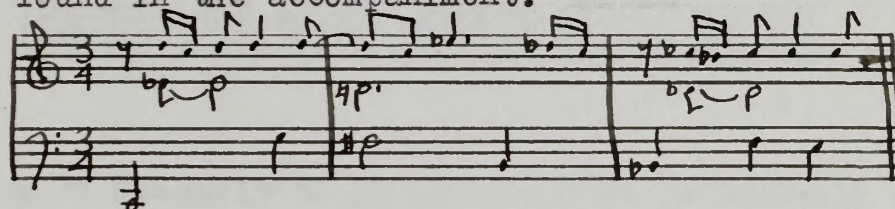
The examples which follow will be an attempt to show how the composers of the twentieth century have made use of this linear style of writing, and to differentiate thereby between the linear and the chordal styles and their combinations and variations. One of the most prominent men in the field of linear writing is Paul Hindemith.

In the type of contrapuntal writing thus described, it is the melodic lines which determine the form and content of the piece. On the other hand, the melodies are not so inter-related; the piece is constructed mainly on chords and their combinations. Between these two extremes of linear and choral writing are many varied and modified combinations of the two. The main difference is not in the external appearance of the music, but in the idea behind the writing. While in choral writing the composer treats his chords as into moving voices, in the linear style of composition the chords are merely the product of the combination of the moving melodic lines. In a style containing truly contrapuntal writing, every tone of one chord moves to a tone of the next chord, while in such as a keyboard style it is more likely to be chords, in part or in whole, which are moved.

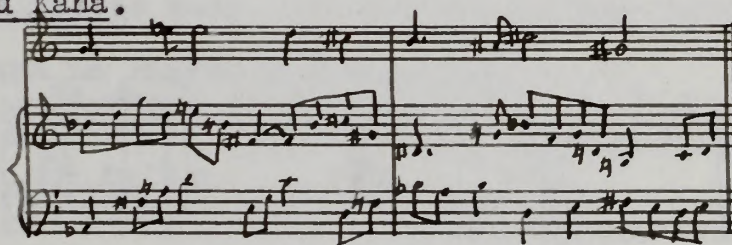
However freely the voice may be made to move, nevertheless to make the music intelligible and at all enjoyable to the listener, there must be some thought given to the harmonic aspect of the composition. Thus all the melodic steps and combinations are of greatest importance.

The examples which follow will be an attempt to show how the composers of the twentieth century have made use of this linear style of writing, and to differentiate thereby between the linear and the choral styles and their combinations and variations. One of the most prominent men in the field of linear writing is Igor Stravinsky.

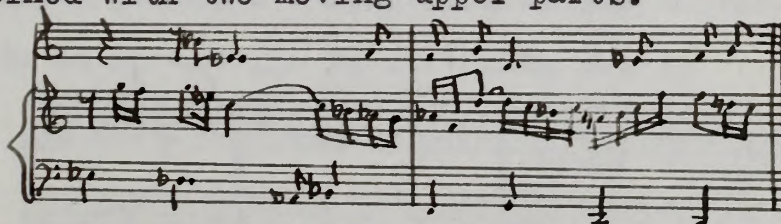
Taking for the first example a passage from the works of Hindemith, we find an illustration where there are three voices moving along in much the manner shown, for several pages of the composition. It is taken from the song in the Marienleben cycle entitled Die Darstellung Mariä im Tempel. Here the voices continually change, each moving in its own pattern, without any particular relationship, one to another. This is found in the accompaniment.



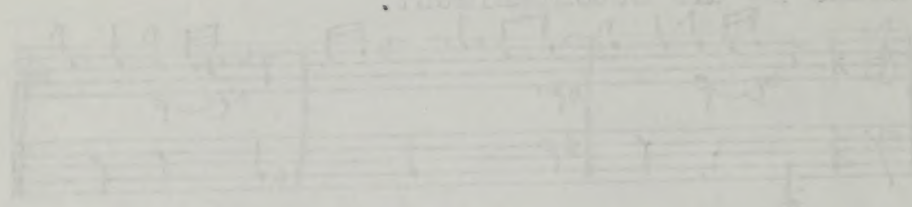
The next example combines two moving parts in the accompaniment with the voice part, each entirely independent of the other two. This is from the same series - the Vor der Hochzeit zu Kana.



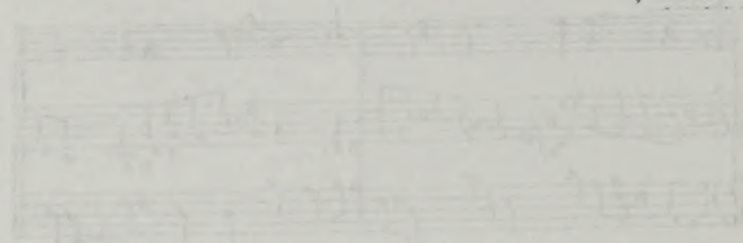
Still from the same series is another example, this time from the Vom Tode Mariä (1). Here an ostinato bass figure is combined with two moving upper parts.



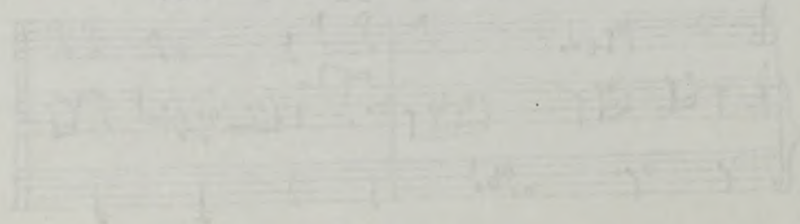
Turning to the first example a passage from the work of
Britten, we find an illustration where three
voices moving along in such the manner shown, the several
pages of the composition. It is taken from the song in the
Hinterland cycle entitled The Partisan's Song in French.
Here the voices continually change, each moving in its own
pattern, without any particular relationship, one to another.
This is found in the accompaniment.



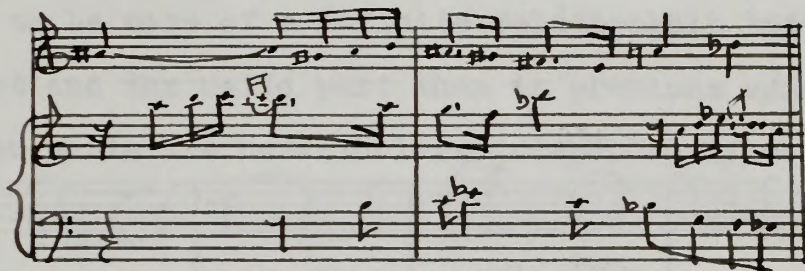
The next example combines two moving parts in the accom-
paniment with the voices part, each entirely independent of
the other two. This is from the same series - The Partisan
March as before.



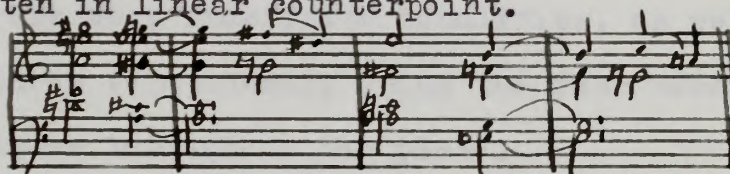
Still from the same series is another example, this time
from the Les Trois Mairies (3). Here an intricate new figure
is combined with two moving upper parts.



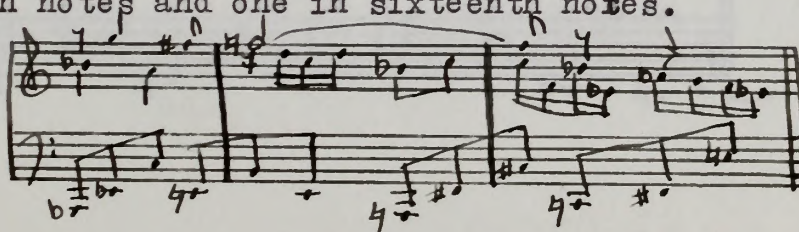
From the second of the three songs titled Vom Tode Mariä, in the second of the variations of which the song is made, is taken the following example of linear counterpoint. Accompaniment and voice move in three separate, independent lines.



Turning to Hindemith's Lieder, we find an entirely different type of linear counterpoint. Here, instead of separately moving voices, are found the parts arranged in chords, but still without interdependence. The chords are almost impossible to analyze as such, and the voices may still be said to be written in linear counterpoint.

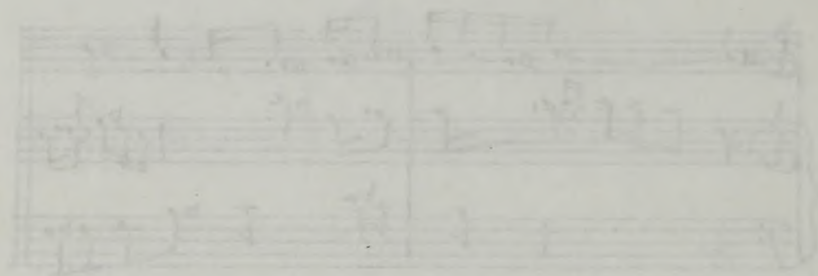


In Hindemith's work titled Klaviermusik - Erster Teil: Übung in drei Stücken is another example containing three moving voice parts, a combination of one sustained part, one in eighth notes and one in sixteenth notes.



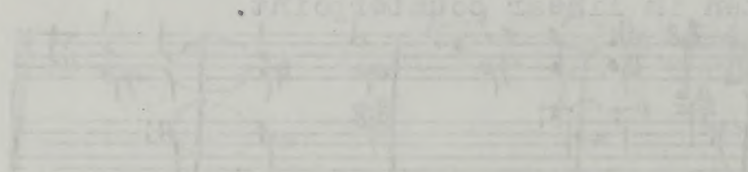
From the second of the three voices which are heard, is the second of the variations of which the song is made, is taken the following example of linear counterpoint. The independent and voice move in three separate, independent

lines.

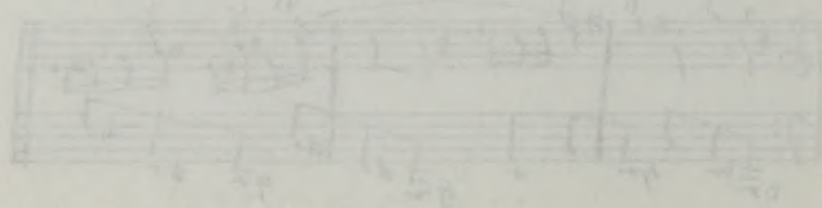


Turning to Hindemith's *Walden*, we find an entirely different type of linear counterpoint. Here, instead of separately moving voices, we find the parts arranged in chords, but still without interference. The chords are almost impossible to analyze as such, and the voices are still to be said

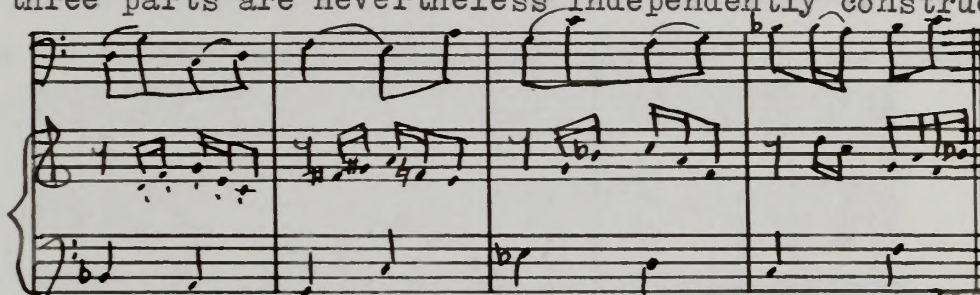
to be written in linear counterpoint.



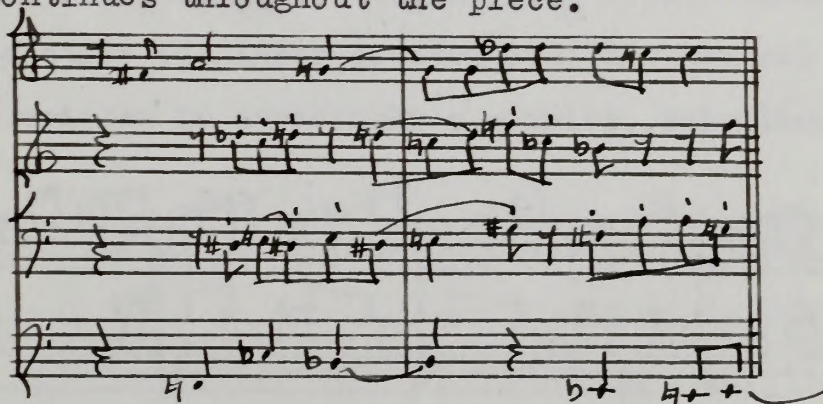
In Hindemith's work titled *Klavierstück - Winter Idyl*: there is first *Stück* is another example containing three moving voice parts, a combination of the standard part, one in eighth notes and one in sixteenth notes.



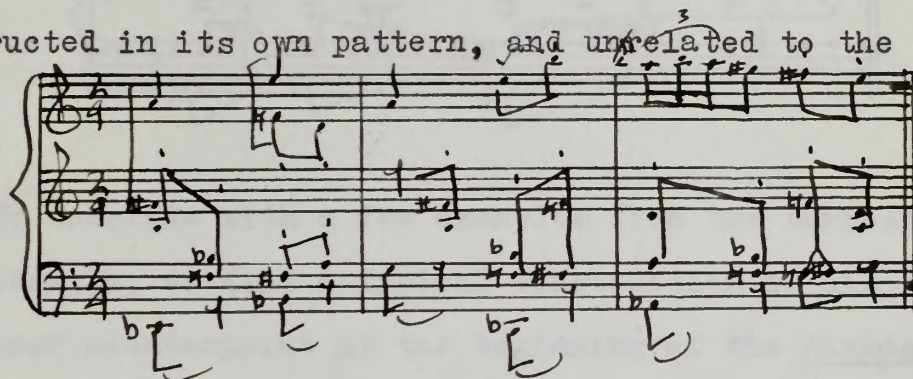
From the first of Hindemith's Drei leichte Stücke, for cello, comes a similar example, combining a cello part based on eighth notes with the two parts in the accompaniment, one in sixteenth notes and one in quarter notes. Here there may be said to be more of a definite relationship between the bass part and the cello part than in previous examples, but the three parts are nevertheless independently constructed.



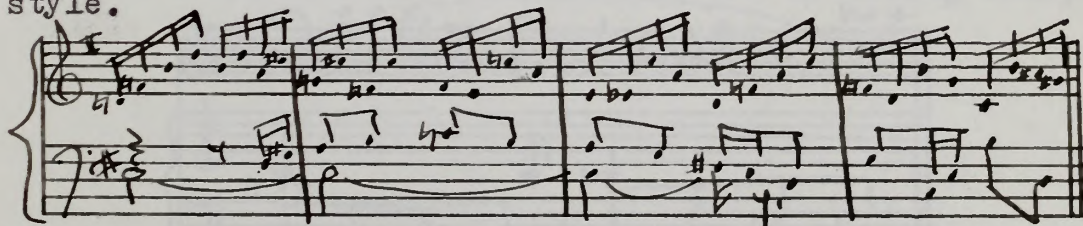
In Schönberg's Six Pieces for Male Chorus are several instances of writing in a linear counterpoint style, with perhaps the most outstanding in the piece number 2, Das Gesetz. Here there are very indefinite tonalities, as well as no distinguishable relationship among the four voices. This style continues throughout the piece.



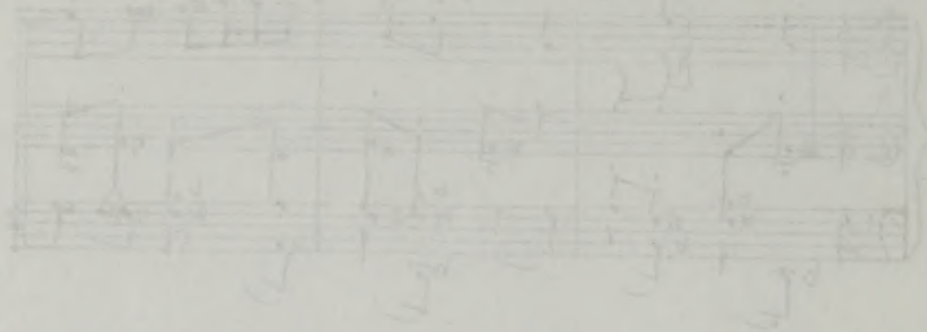
In the works of Stravinsky are some examples of linear counterpoint, although probably not as many as in the compositions of such composers as Schönberg and Hindemith. The first of those to be illustrated here is taken from the piano reduction of the string quartet of Stravinsky titled Concertino. Here the upper part has a melody, against which each of the other three parts has its own melodic part, constructed in its own pattern, and unrelated to the other parts.



In the third movement of the Sonate pour Piano, also by Stravinsky, is a passage which conforms to the regulations of the device of linear counterpoint writing, except for the presence of a pedal point in one part. However, when the pedal point ceases, the other two voices carry on in a definite style of linear counterpoint for several measures. This is written in Stravinsky's simpler, Neo-Classicistic style.



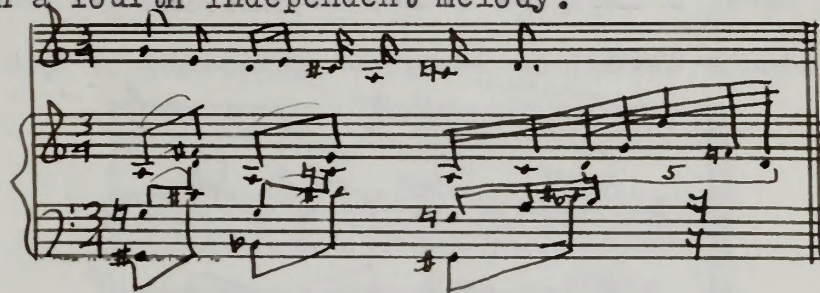
In the work of Schumann and some writers of music
 considered, although generally not as in the case
 of some writers on psychology and philosophy. The
 first of these to be mentioned here is Felix Mendelssohn.
 Some reduction of the above quoted of Schumann's style
 Schumann. Here the upper part has a melody, repeated notes
 and of the other three parts has its own melodic part, con-
 sidered in its own part, and repeated in the other parts.



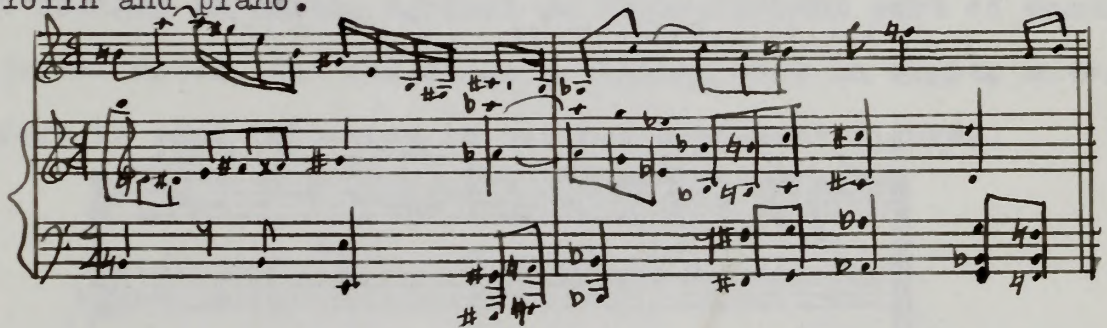
In the third movement of the Piano Concerto, also in
 Schumann, is a passage which contains in the right hand
 of the device of linear counterpoint writing, except for
 the presence of a pedal point in the left. However, when
 the pedal point ceases, the other two voices drop out in a
 rhythmic style of linear counterpoint for several measures.
 This is written in Schumann's style, neo-classical



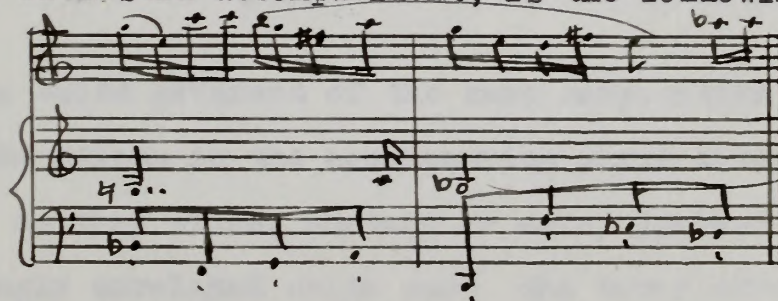
Still in the works of Stravinsky, in the second of the songs called Berceuses du Chat, Intérieur, the accompaniment is written in three lines of independent melody, played by three clarinets. Added to this is the soprano solo, bringing in a fourth independent melody.



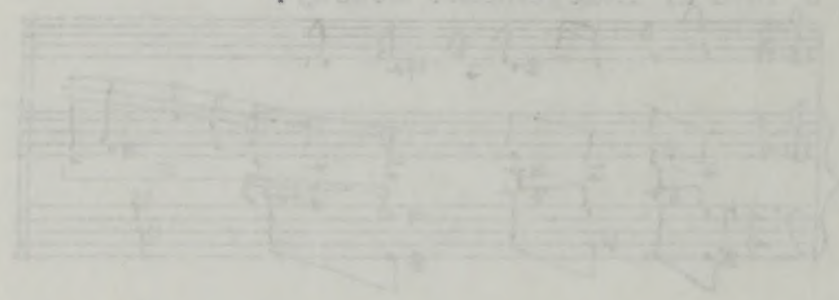
To conclude with a few examples from the compositions of Hindemith, we find a typical construction in his style of linear counterpoint at the beginning of the Sonate in D for violin and piano.



In Hindemith's Kammermusik No. 4, a violin concerto with chamber orchestra accompaniment, is the following example.



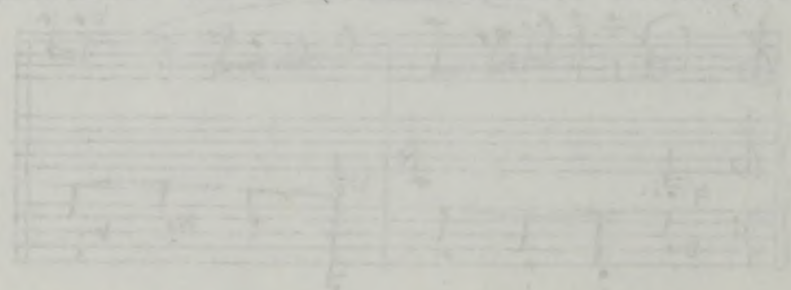
Still in the style of Stravinsky, in the second of the
pieces called *Les Femmes d'Alger*, the accompaniment
is written in three lines of independent melody, played
by three clarinets. Added to this is the soprano solo, which
is a sharp independent melody.



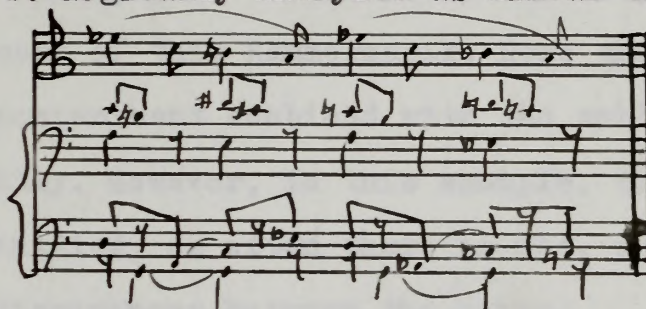
To conclude with a few examples from the composition of
Brahms, we find a typical composition in his style of
linear counterpoint at the beginning of the *Symphony No. 1* for



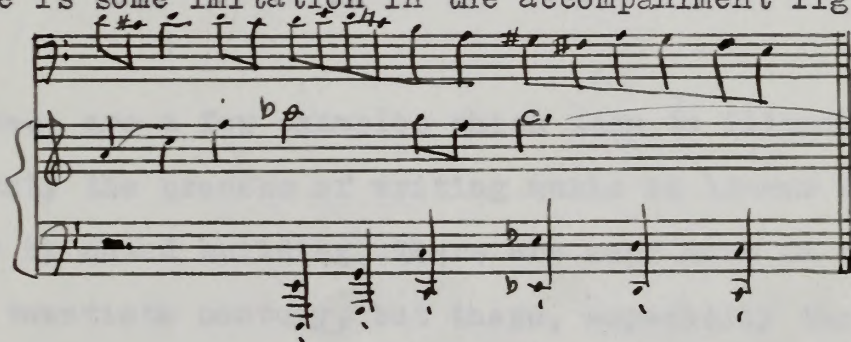
In Brahms's *Symphony No. 1*, a violin concerto with
chamber orchestra accompaniment, is the following example.



This pattern of writing continues throughout this movement. In the next movement is a little different type of writing, the parts moving together, rather than each one in a different rhythm. Here there are three parts in the accompaniment, added to the solo violin part, all over a pedal point on G, which may be logically analyzed as linear counterpoint.

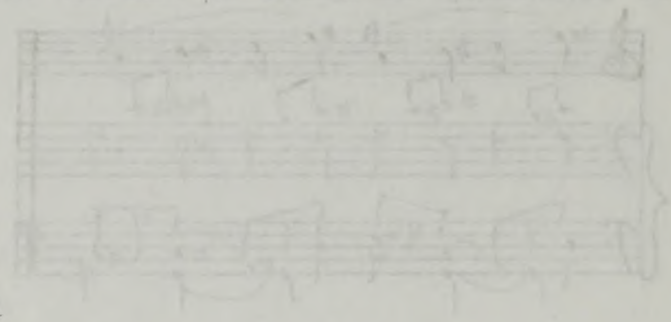


In the second movement of the Kammermusik No. 3, a concerto for cello and ten solo-instruments, there is a linear style of writing in which, against an accompaniment part of mostly quarter notes, the cello has a running part in eighth notes. There is some imitation in the accompaniment figures.

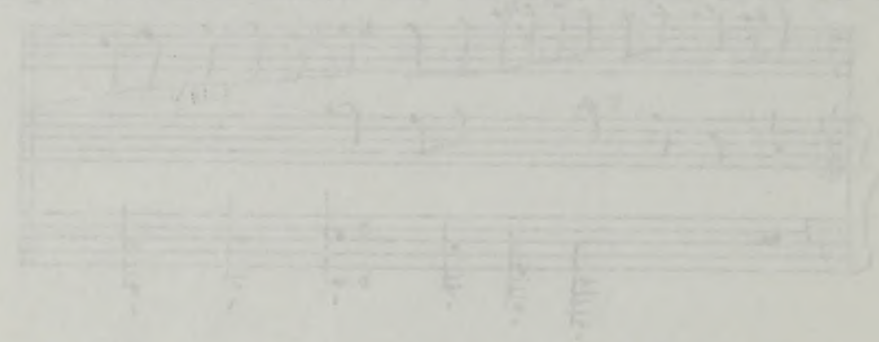


In the third movement of the same composition is a passage where the voices in the accompanying parts alternate in prominence, as they either sustain or move. Against this is written a seemingly unrelated cello part. The total effect is that of four separate and independently moving parts.

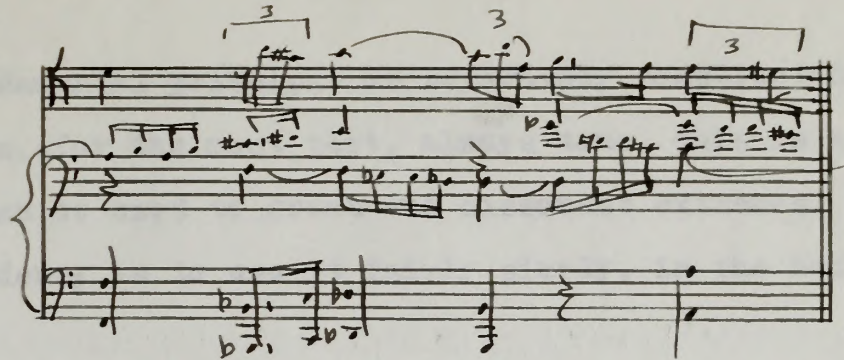
This pattern of writing indicates this movement.
In the next movement is a little different type of writing,
the parts moving together, rather than each one in a differ-
ent rhythm. Here there are three parts in the accompaniment,
added to the solo violin part, all over a pedal point on G,
which may be technically explained as follows:—



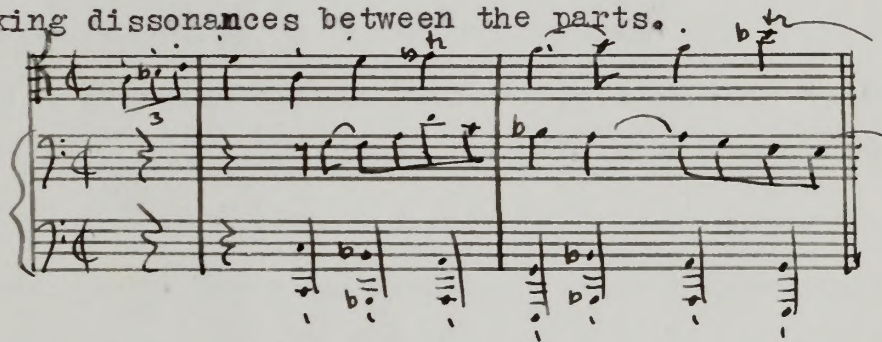
In the second movement of the Quintet, No. 5, 2 movements
for violin and two viola-instruments, there is a similar type
of writing in which, against an accompaniment part of mostly
quarter notes, the violin has a running part in eighth notes.
There is some indication in the accompaniment of a



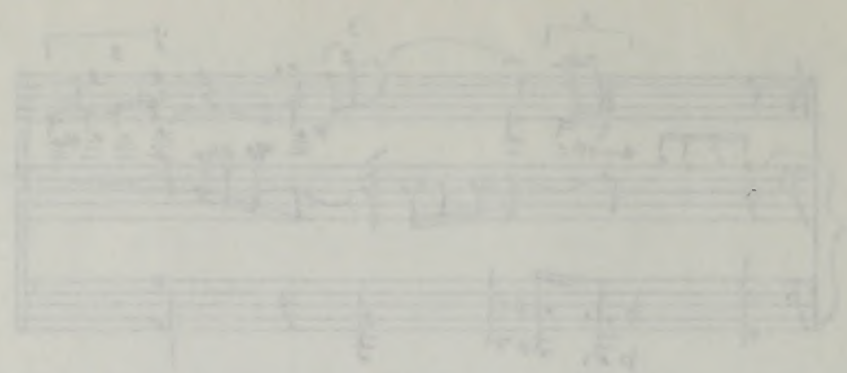
In the third movement of the same composition is a passage
where the violin in the accompaniment part is written
in sixteenth notes, or even eighth notes. Against this is written
a melody in the solo violin part. The total effect is that of
two separate and independently moving parts.



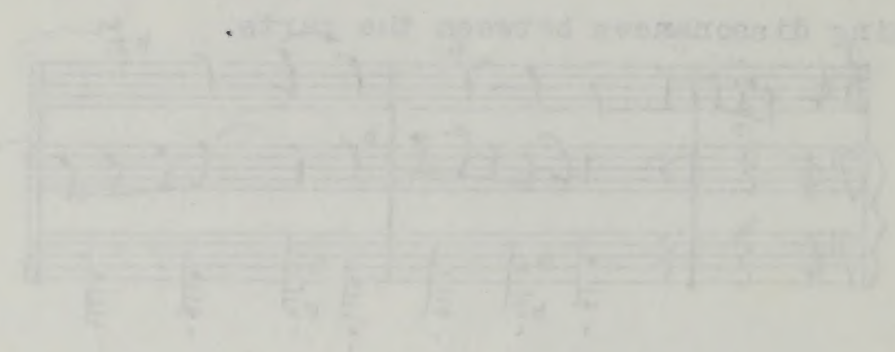
The last example of this style of writing is taken from the last movement of this Kammermusik. Here there are two voices in the accompaniment combined with the cello part, all moving independently. However, in this example, there is a definite tonality implied, as often there is not, and there are no striking dissonances between the parts.



These are a few examples which seem to illustrate quite clearly the process of writing music in linear style, rather than by chord building. There are many more in the music of the twentieth century, but these, especially those in the music of Hindemith, seem to be representative as a whole. Although all the examples given do not follow precisely the rules stated in Hindemith's book, The Craft of Musical Composition, in that all the parts do not always move at the same time to a different combination of notes, nevertheless



The last example of this style of writing is taken from the last movement of the Symphony. Here there are two voices in the accompaniment combined with the solo part, all moving independently. However, in this example, there is a definite family implied, as other there is not, and there are no



There are a few examples which seem to illustrate quite clearly the process of writing music in a new style, rather than by strict building. There are many more in the world of the twentieth century, but these, especially those in the hands of Hindemith, seem to be representative as a whole. Although all the examples given do not follow precisely the rules stated in Hindemith's book, The Craft of Musical Composition, in that all the parts do not always move at the same time to a different combination of notes, nevertheless

the fundamental principle of separately constructed voice parts is, for the most part, always true. This is a device which can be used to great and dissonant extremes. The present tendency is to use it fairly simply, in the Neo-Classical idiom.

The fundamental principle of psychology is that the mind is not a passive receiver of impressions, but an active organ which interprets and organizes the material which it receives. This is a view which can be said to rest on the assumption that the mind is not a mere receptacle for impressions, but an active organ which interprets and organizes the material which it receives. In the two following chapters we shall see how this view is supported by the facts of psychology.

CONCLUSION

The preceding chapters have been designed to give some insight into the devices being used by some of the more recent outstanding composers in their works. The six categories have been chosen as being most representative of these devices, although there are also many others which might be included.

The device of the first chapter, parallel motion, from the Impressionistic school, has developed from the use of blocks of chords by the impressionists to more varied uses. The composers of the group taken up here use not only the blocks in parallel motion, but also open intervals, such as fourths, fifths, sevenths, and ninths. The present-day tendency seems to be to simplify as much as possible, with many of the composers, the melodic lines and the chords used - thus an increased use of the open intervals, with a continued use of moving chord blocks.

The added notes and repetition taken up in the second chapter are perhaps being used now with less frequency than in the earlier decades of the century. They played a great part in the first of Stravinsky's famous works, and in other works of that time, but have been lately giving way to simpler and clearer forms and lines. This device is often used as an effect, or a means to an effect, and is not quite as important to music as a whole as some of the other subjects dealt with here.

Polyharmony and polytonality are two of the most popular

The preceding chapters have been designed to give some insight into the various points of view of the more recent developments in the theory of the algebraic number field. It has been shown that the theory of the algebraic number field is a very rich and varied subject, and that it is one of the most important branches of modern mathematics. The theory of the algebraic number field is a very rich and varied subject, and that it is one of the most important branches of modern mathematics.

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forms of expression for the twentieth century composers. They create an entirely new idiom, that of the combination of two or more orthodox chords or tonalities in an unorthodox way. Many interesting examples may be found of these styles, in which there are almost limitless possibilities, and the twentieth century composers have made greatly varied use of these possibilities.

The style of atonality, as has already been stated, was achieved the most nearly to perfection by Schönberg, who later developed the twelve-tone method as his means of musical expression. He and a few of his pupils are the only ones to approach true atonality, and to achieve a mechanical structure in which there is no sign of a tonality. There is some work still being carried on in this vein, but for the most part, the composers are keeping to definite key schemes in their works.

As has also already been stated and explained, the practice of building chords in fourths, as done mostly by Schönberg and Scriabine, with Hindemith following their lead, was aimed to make music more rich and varied and interesting. As, for instance, in the case of Scriabine's Mystic Chord, it is a fairly dissonant device, and continues in much usage among present composers.

Hindemith has explained the system of writing known as linear counterpoint in his book, and practises it in his compositions. The other composers use this style to varying

degrees, but seemingly not to the extent that Hindemith does. The foundation of most of the music studied here has been the chord, which is opposite to the principles of linear counterpoint. However, in much of Hindemith's music there is no suggestion of chords, but merely melodic lines in combination. This last style is one which may well be much more developed in the years to come, and may become the idiom of many more composers.

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